

Tab 2



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(12) **United States Patent**
Nareddy et al.

(10) **Patent No.:** **US 7,035,925 B1**
(45) **Date of Patent:** ***Apr. 25, 2006**

(54) **PARSING NAVIGATION INFORMATION TO IDENTIFY INTERACTIONS BASED ON THE TIMES OF THEIR OCCURRENCES**

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(73) Assignee: **Revenue Science, Inc.**, Bellevue, WA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 11 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: 11/149,036

(22) Filed: **Jun. 8, 2005**

Related U.S. Application Data

(62) Division of application No. 10/005,183, filed on Dec. 5, 2001.

(51) Int. Cl. **G06F 15/173** (2006.01)

(52) U.S. Cl. **709/224; 709/203; 709/218; 709/223; 707/1; 707/6; 463/37; 463/38**

(58) **Field of Classification Search** **709/223, 709/224, 203, 218, 219, 225, 229; 707/1-10; 705/14, 26, 27, 37, 400; 715/853, 854; 725/32, 725/34**

See application file for complete search history.

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Primary Examiner—Saleh Najjar

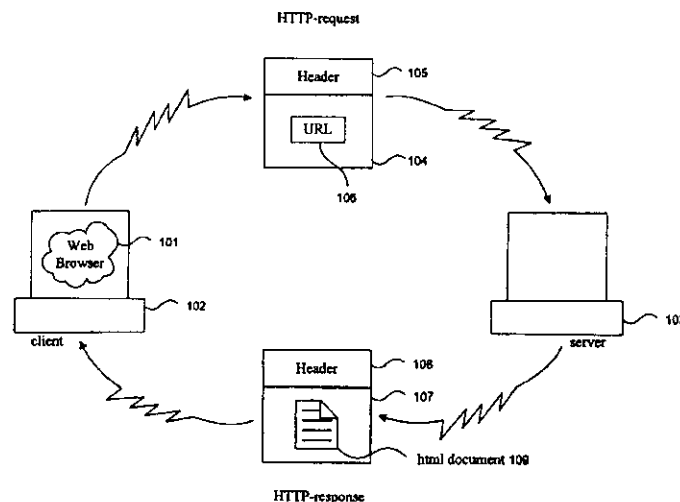
Assistant Examiner—Vitali Korobov

(74) Attorney, Agent, or Firm—Perkins Coie LLP

(57) ABSTRACT

A method, system and computer-readable medium for analyzing interaction or usage data, such as for customers, is described. Various data parsing information may be defined and used as part of the analysis, such as by using customer-specific information to identify various occurrences of interest. For example, the parser component can use data defining customer-specific categories of content set items and customer-specific types of events of interest. Such high-level types of occurrences can be specified in a variety of ways, such as by using a combination of a logical web site, one or more URIs corresponding to web pages, and/or one or more query strings. In addition, in order to associate the appropriate data parsing information with data to be processed, the data parsing information can also include version information that specifies when it is applicable. The data parsing information may also map actual web sites to logical sites.

39 Claims, 60 Drawing Sheets



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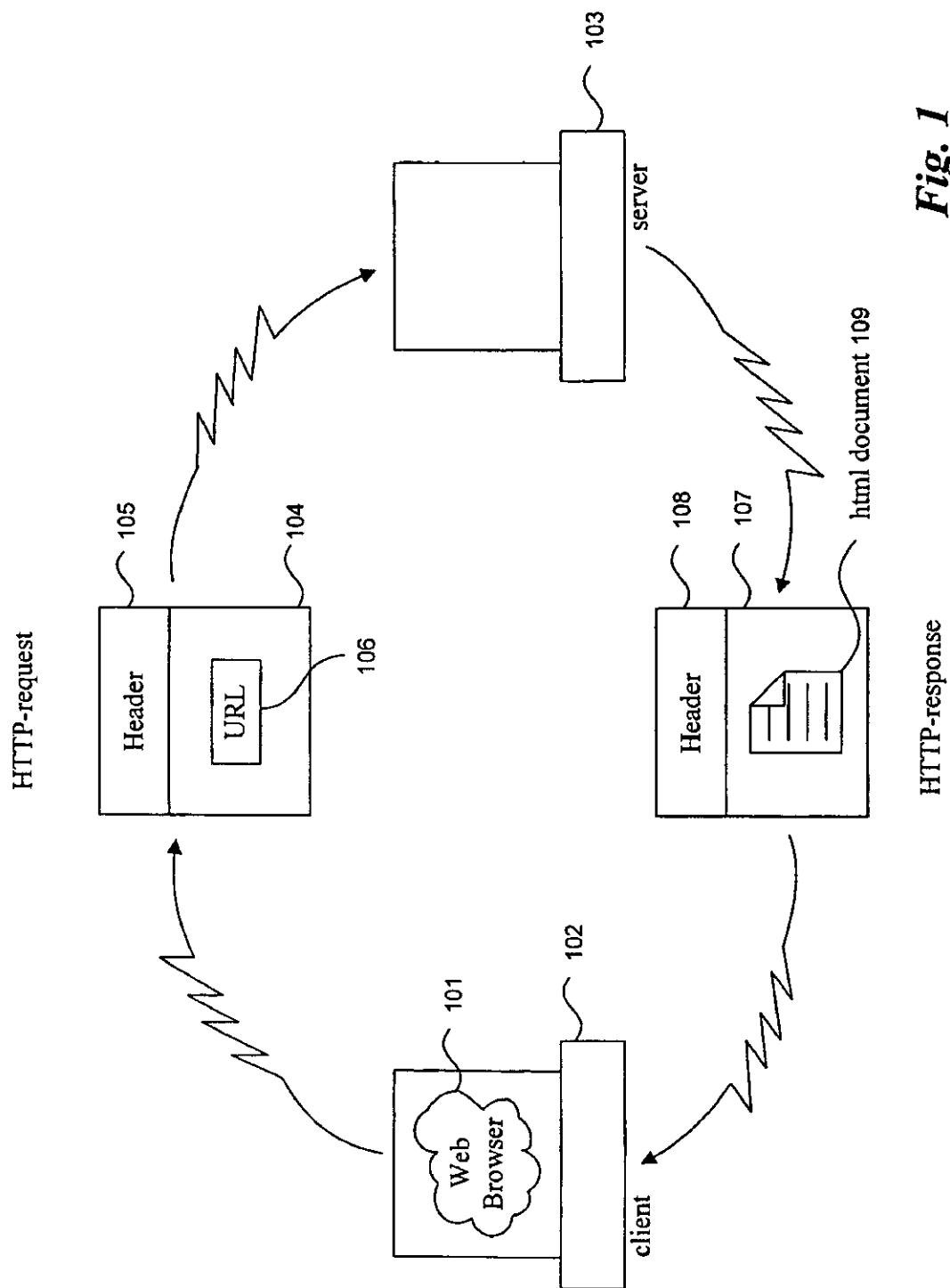


Fig. 1

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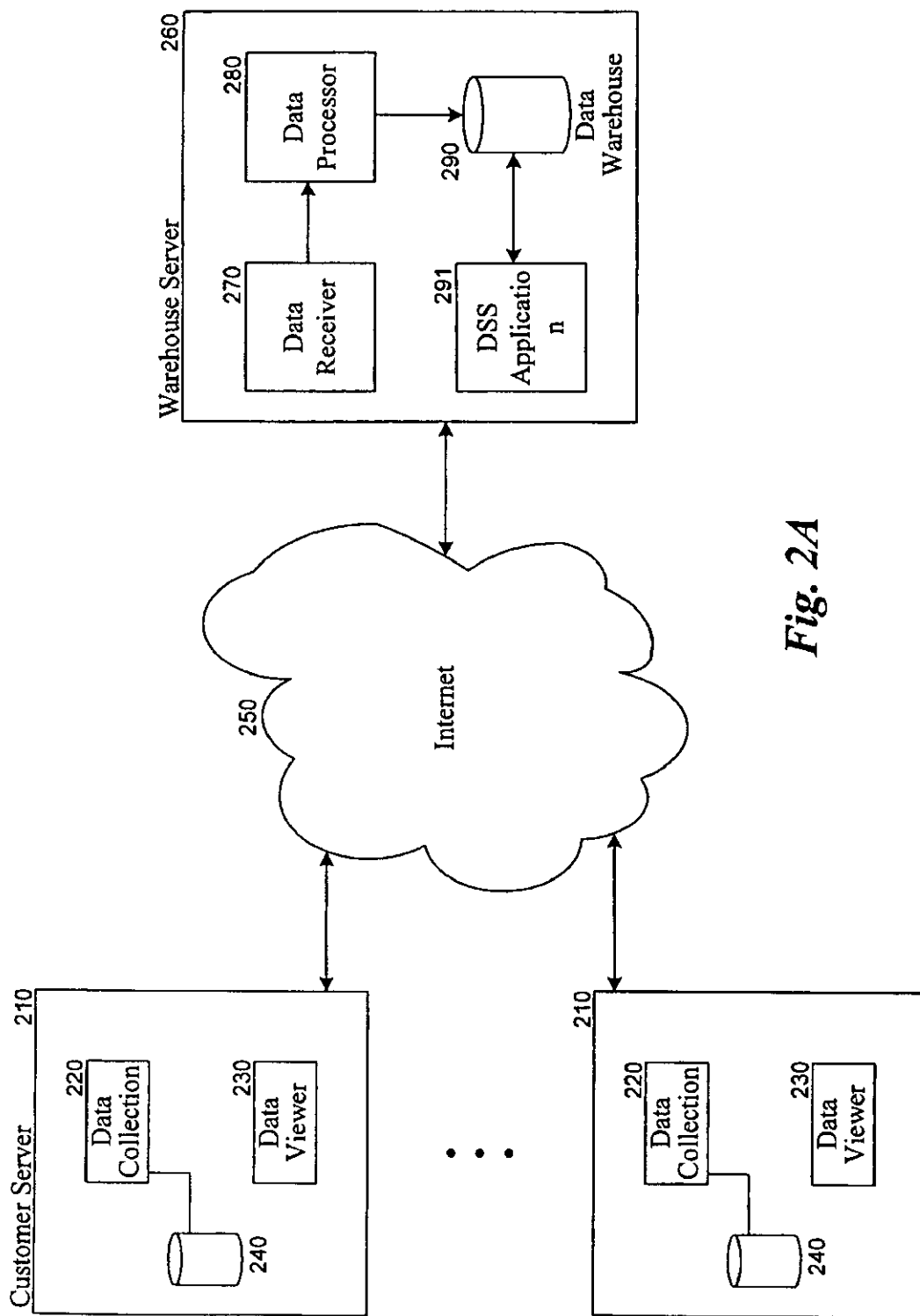


Fig. 2A

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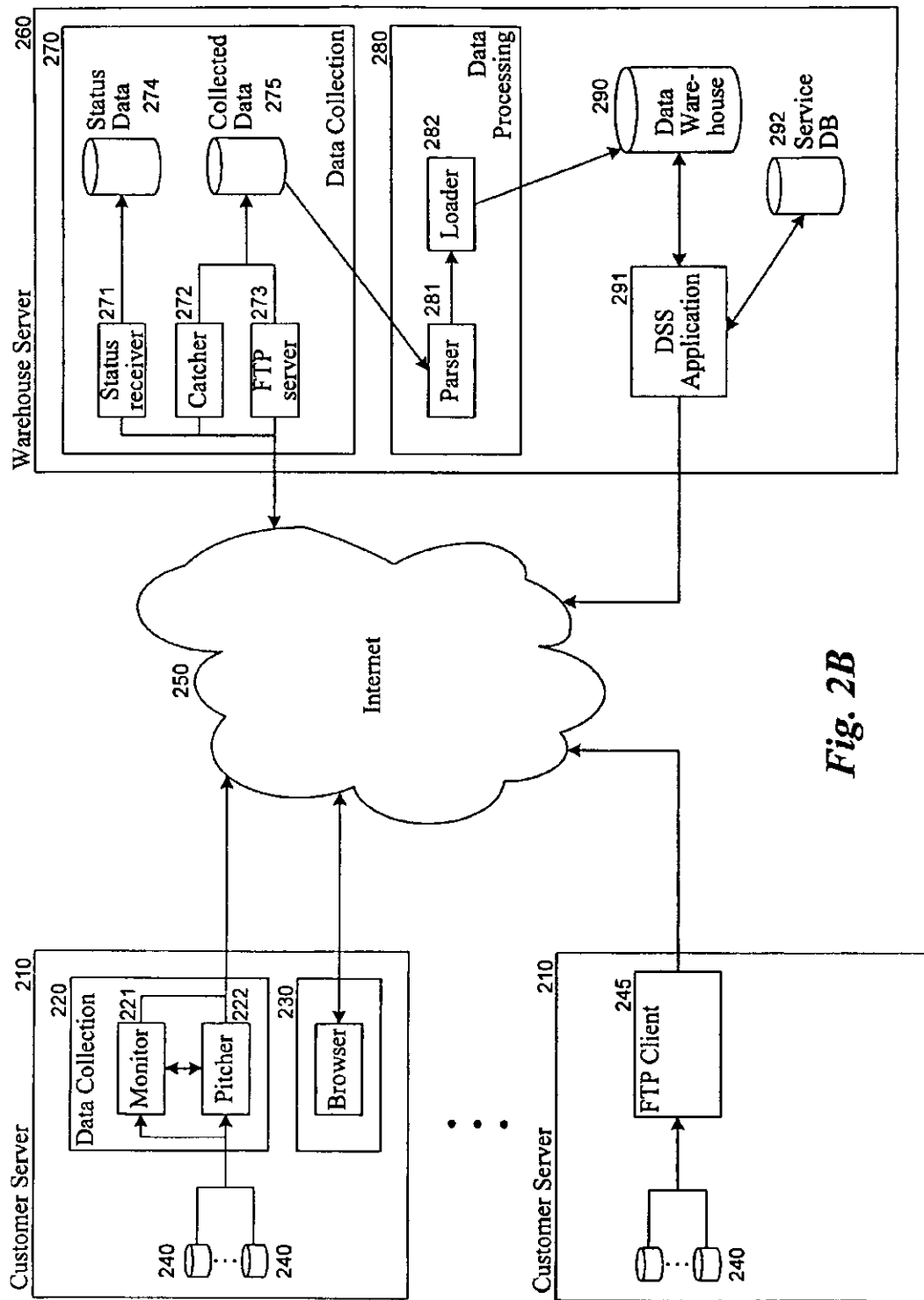


Fig. 2B

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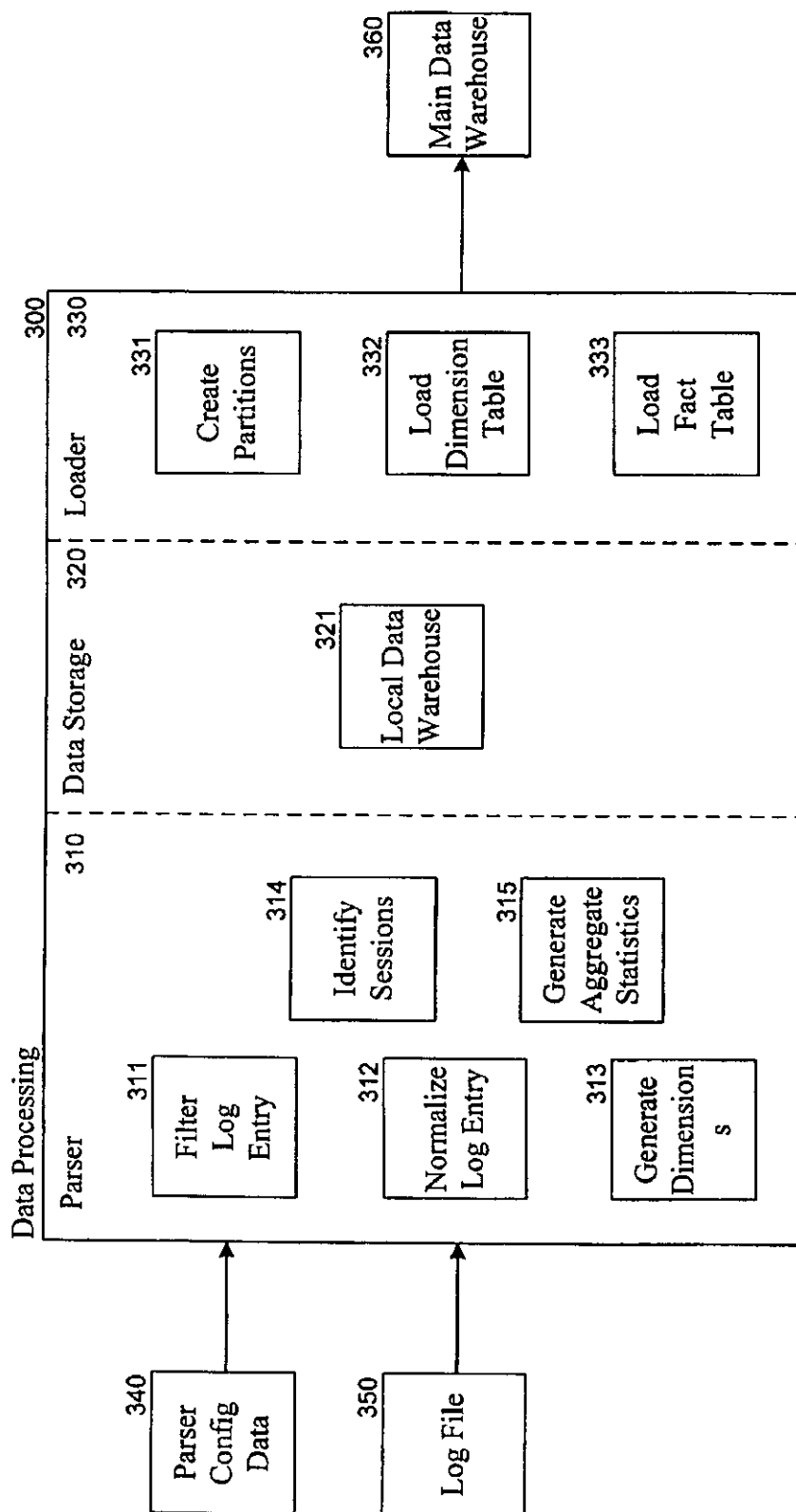


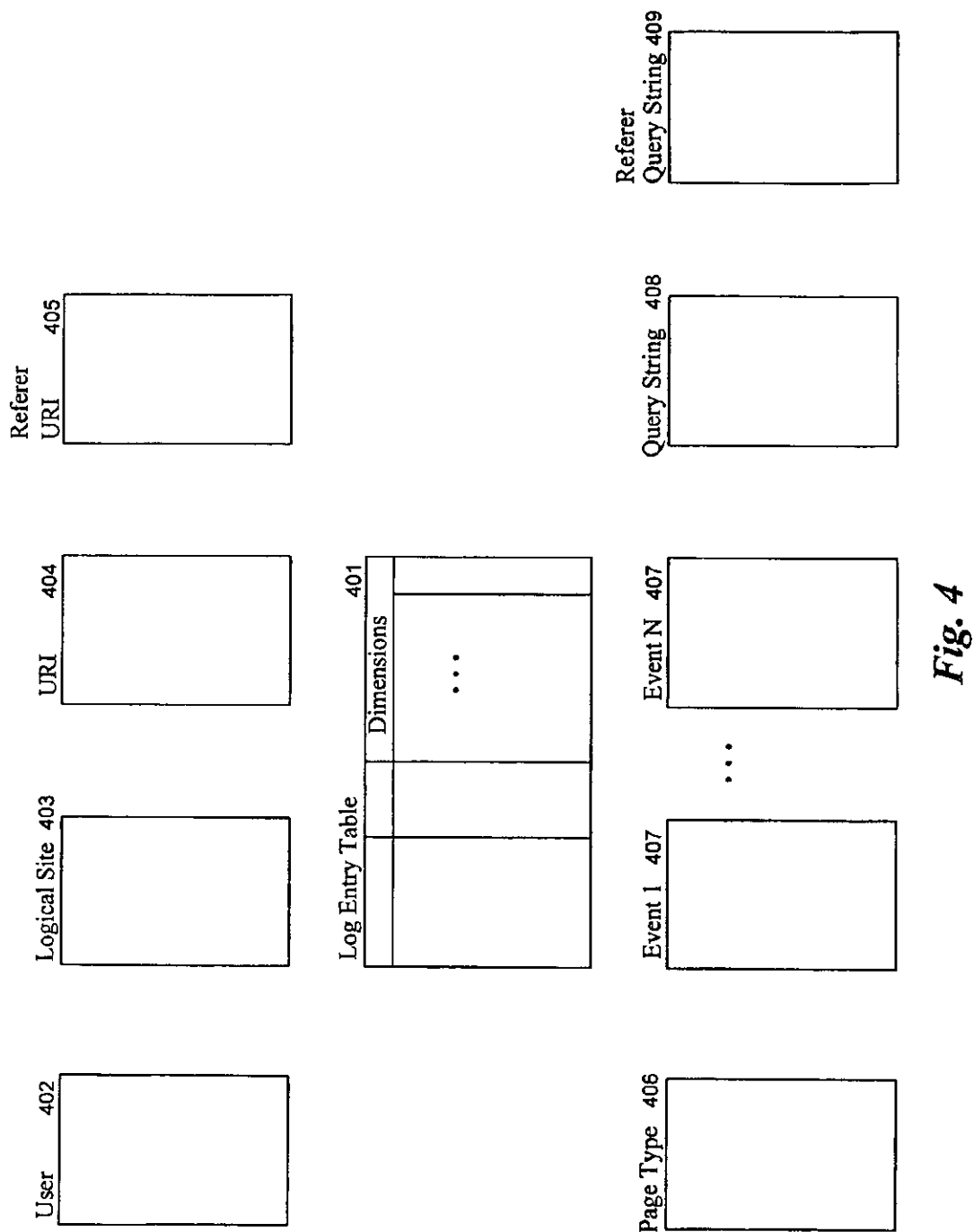
Fig. 3

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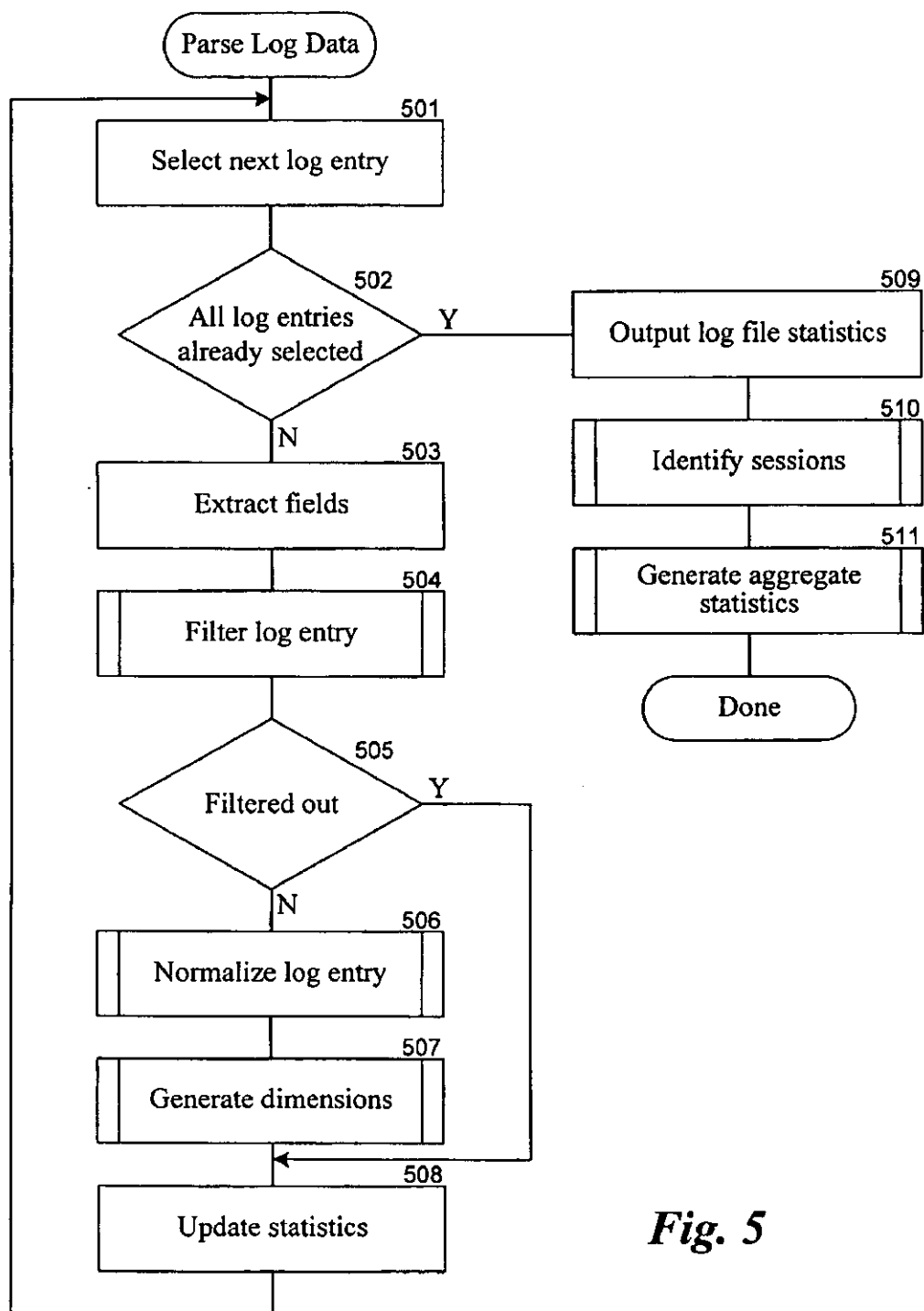


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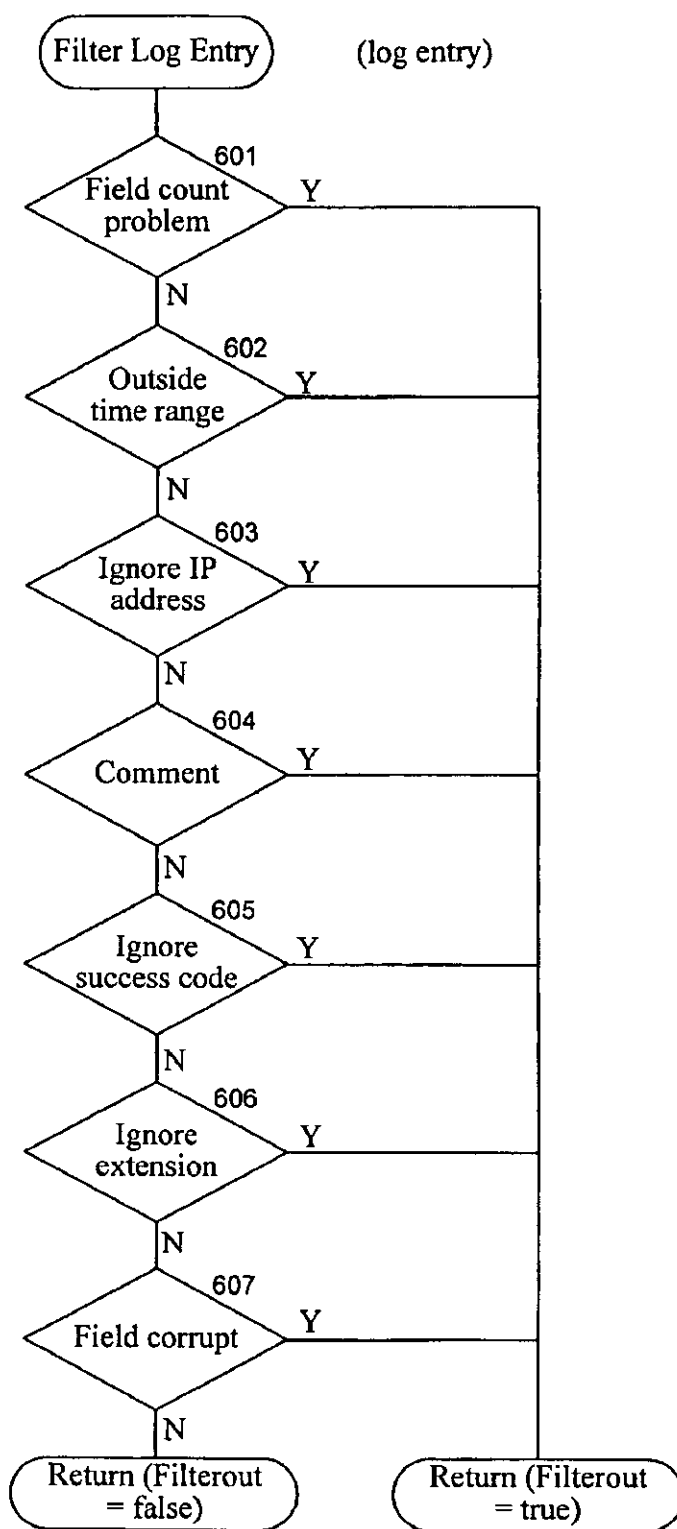
*Fig. 5*

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**Fig. 6**

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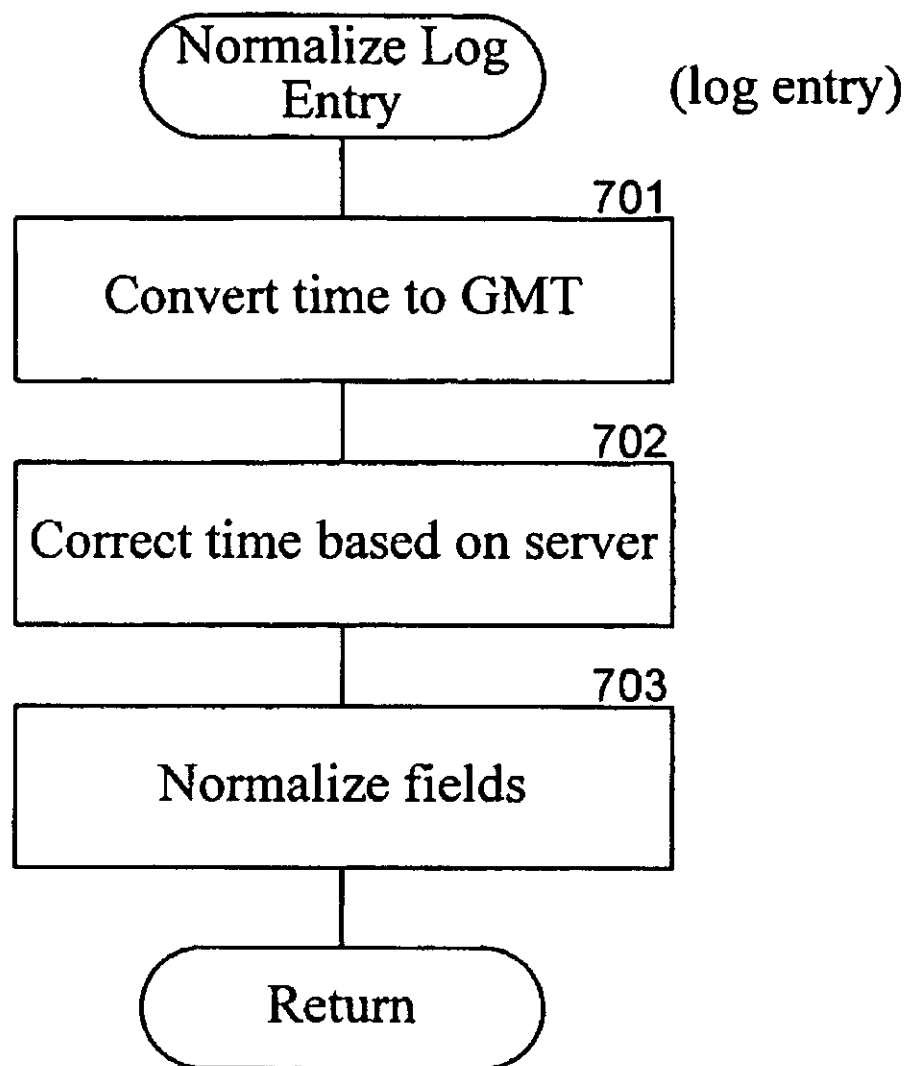


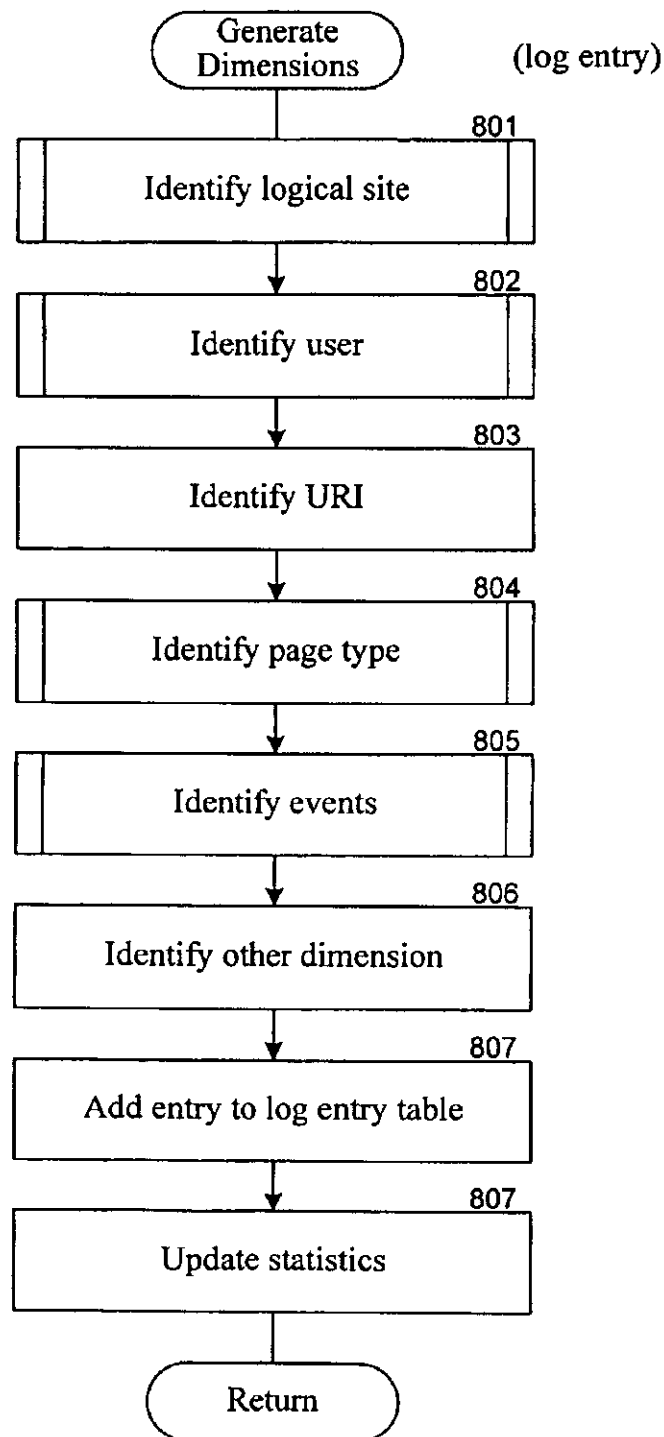
Fig. 7

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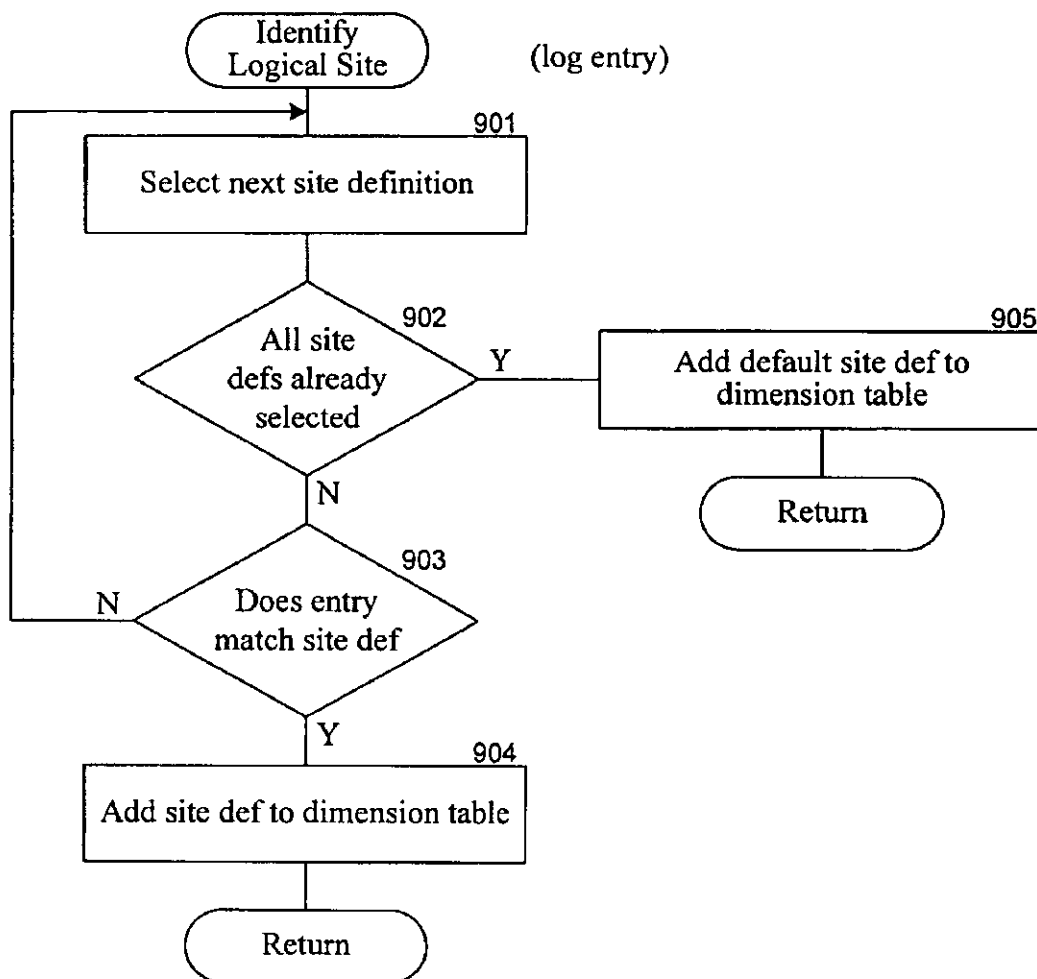
**Fig. 8**

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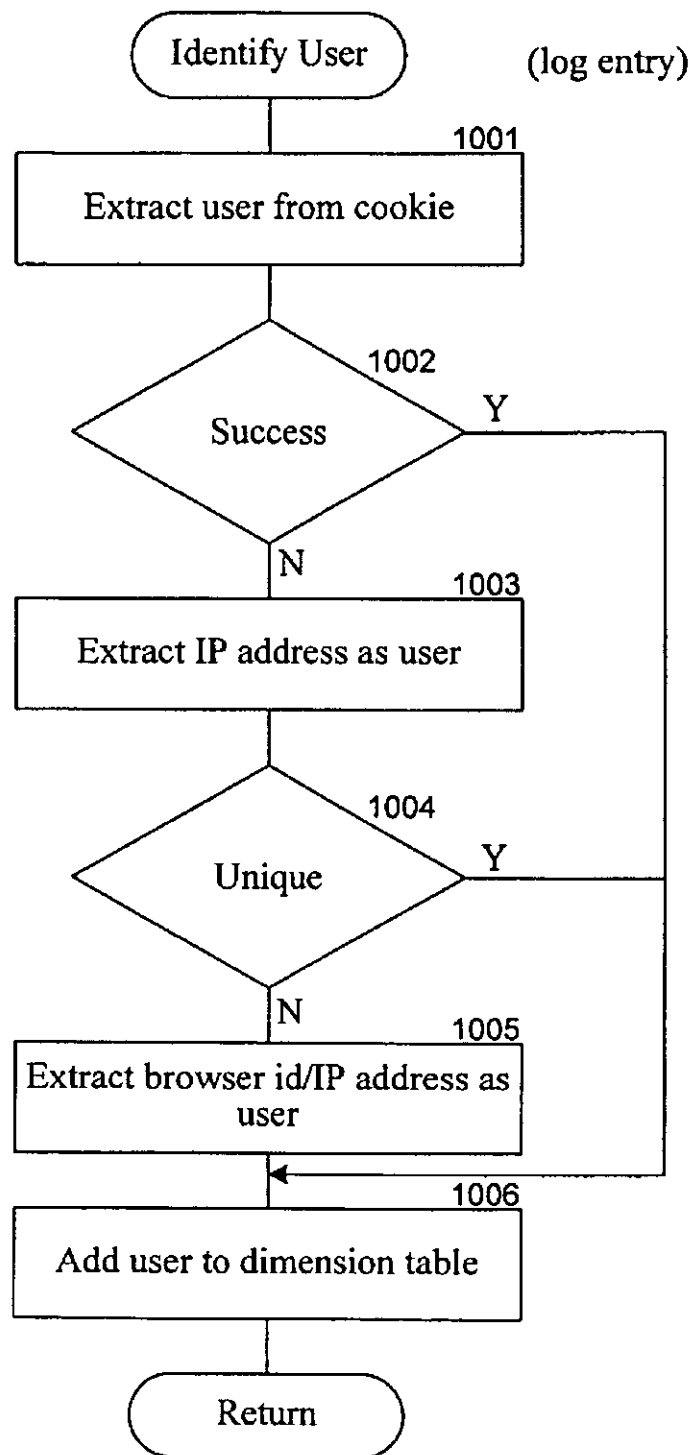
**Fig. 9**

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**Fig. 10**

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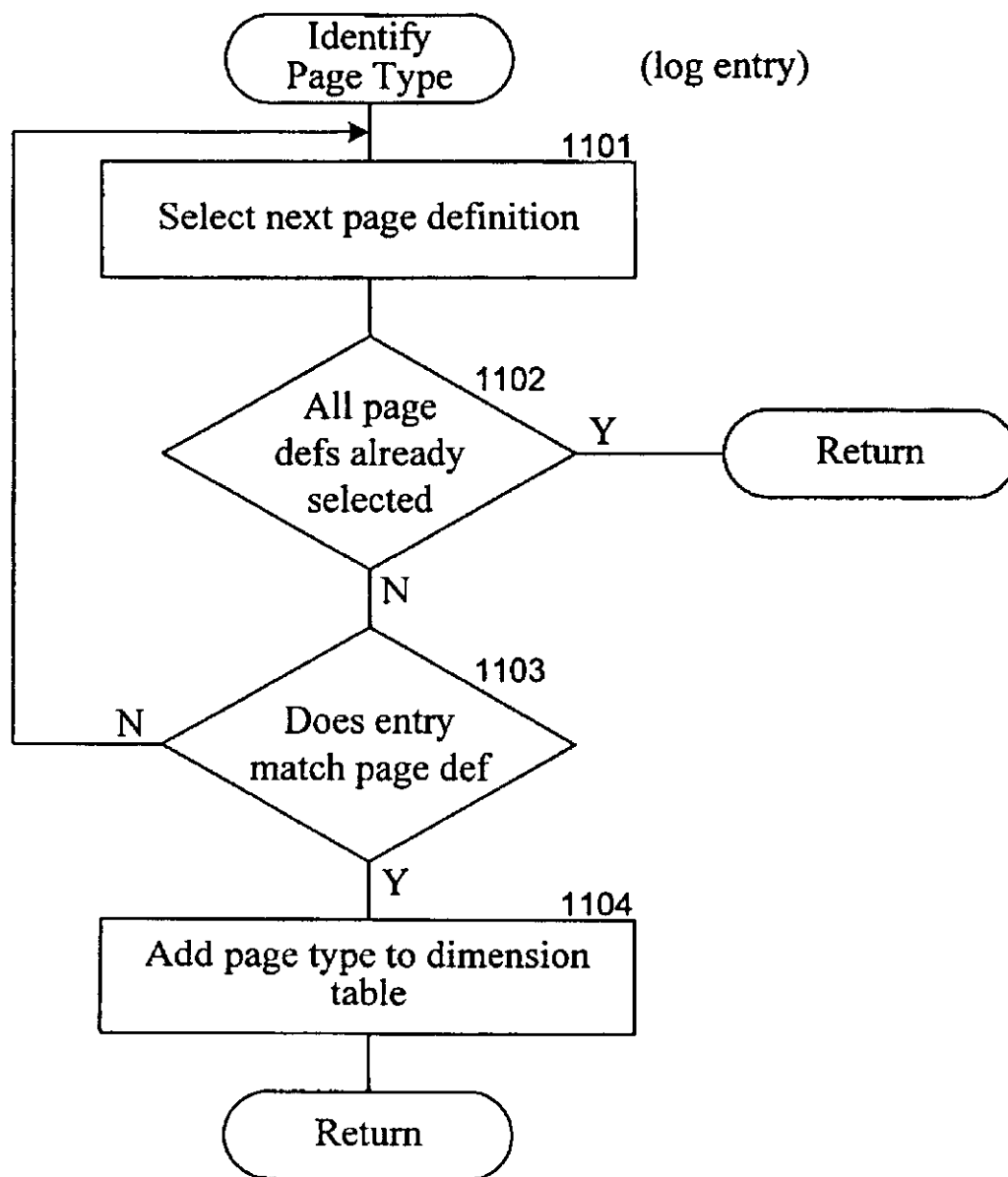


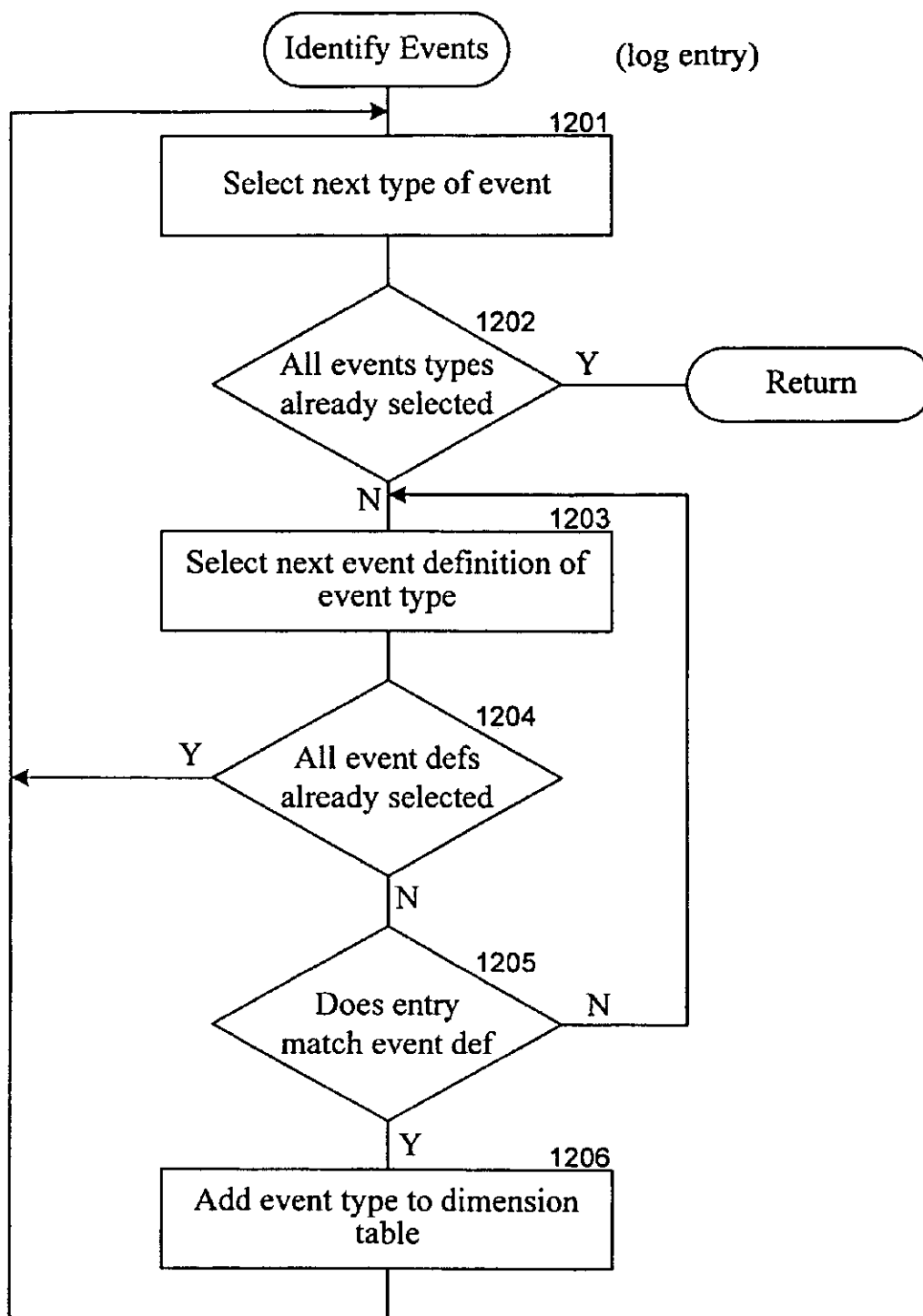
Fig. 11

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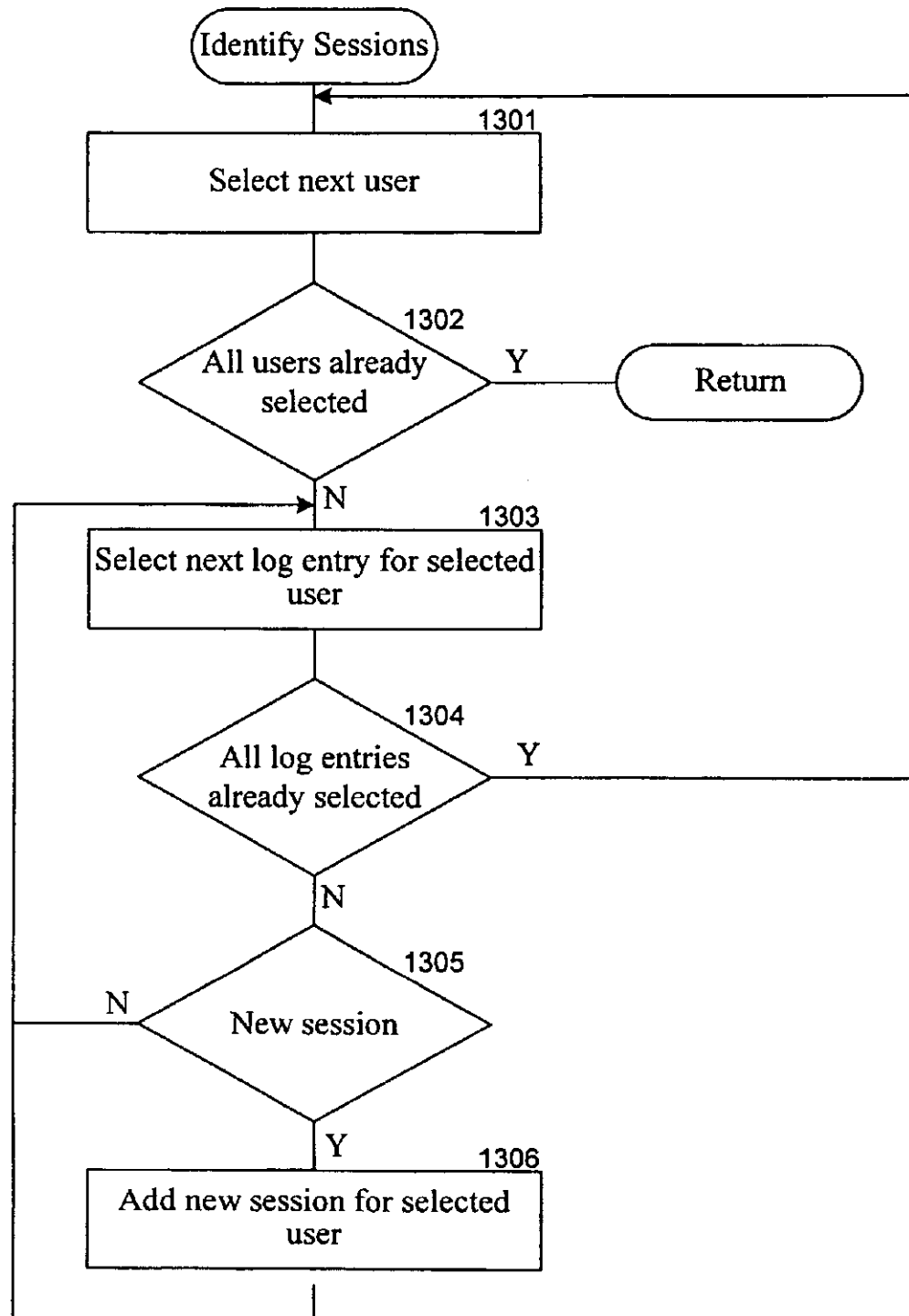
**Fig. 12**

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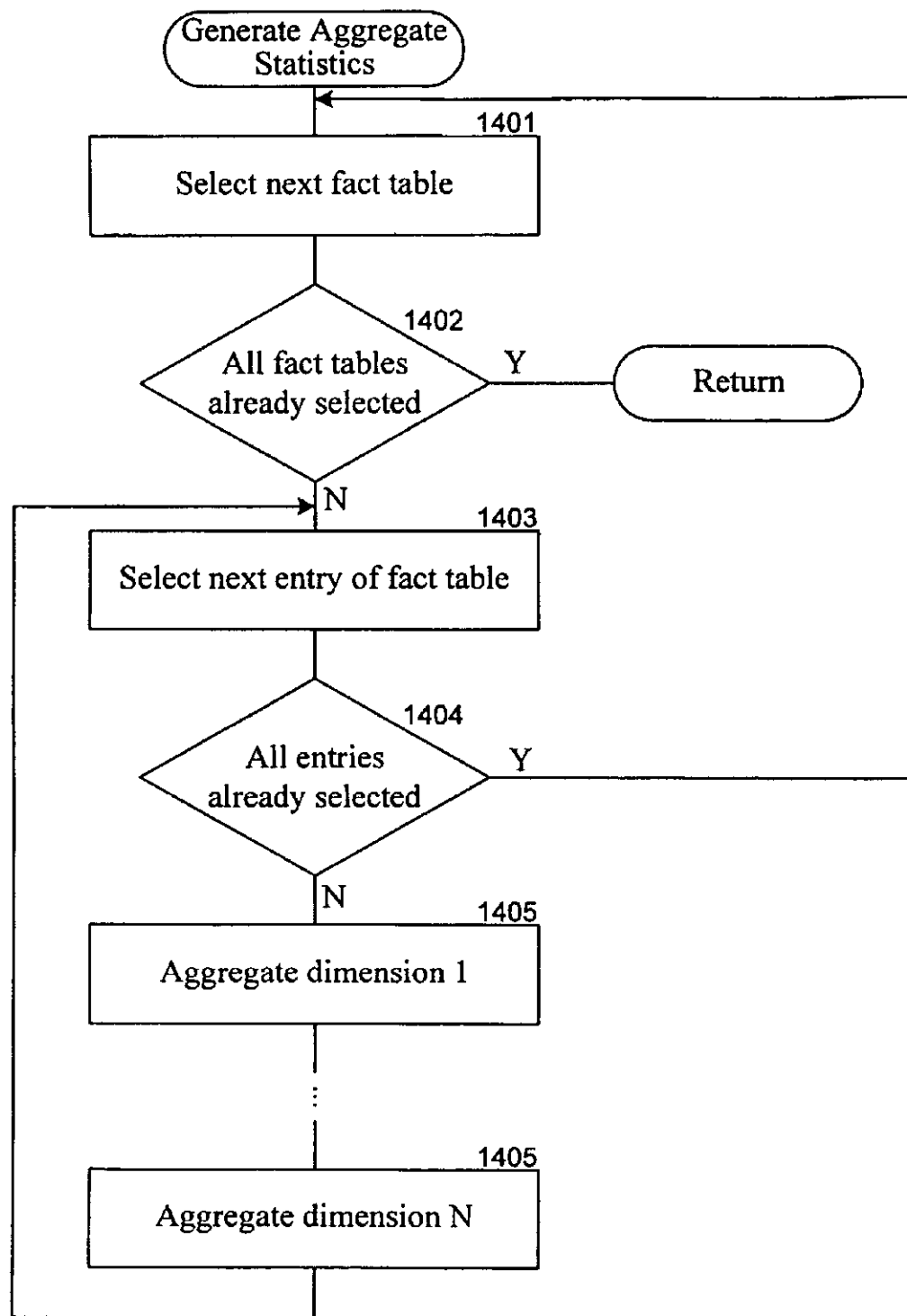
*Fig. 13*

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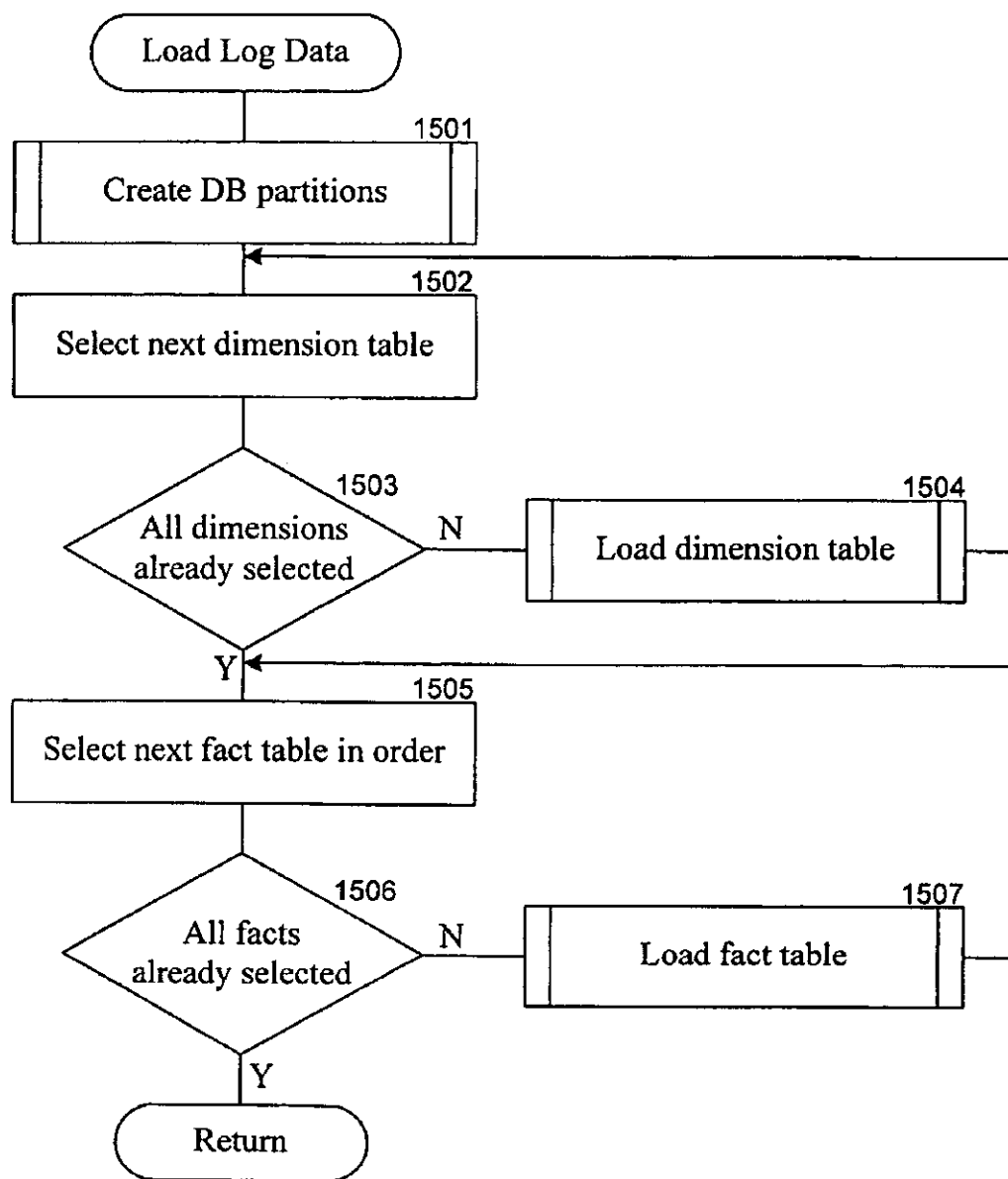
**Fig. 14**

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**Fig. 15**

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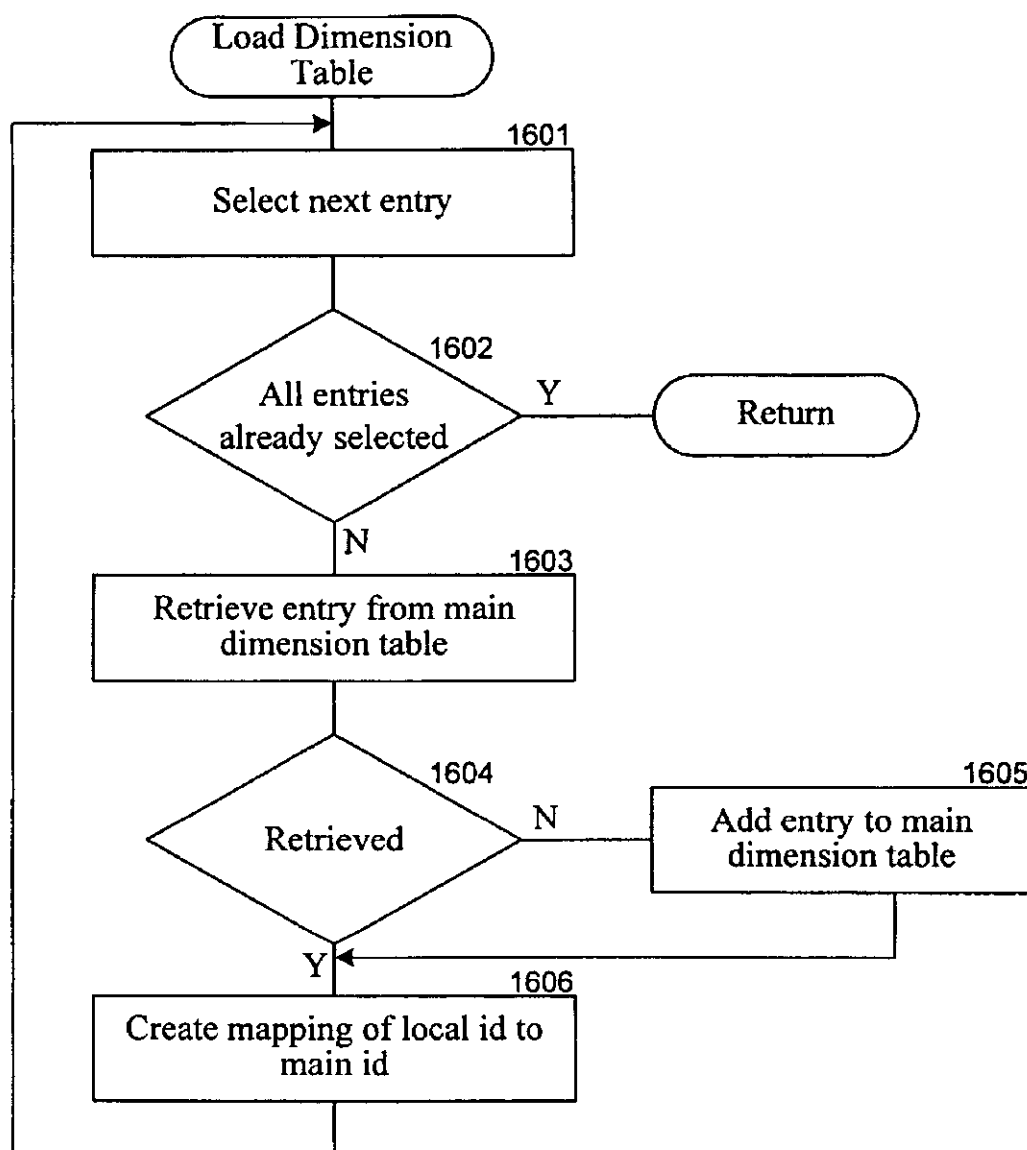


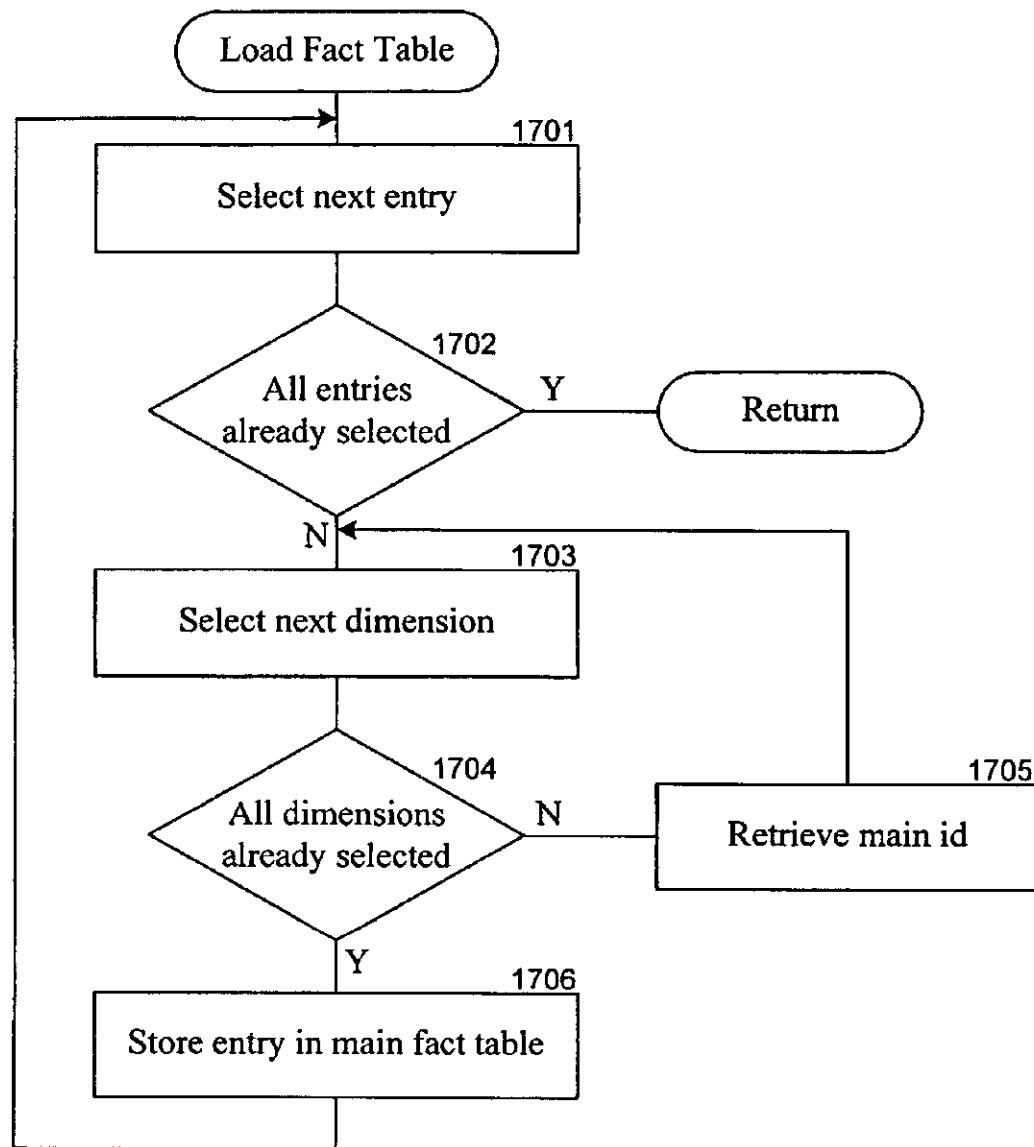
Fig. 16

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*Fig. 17*

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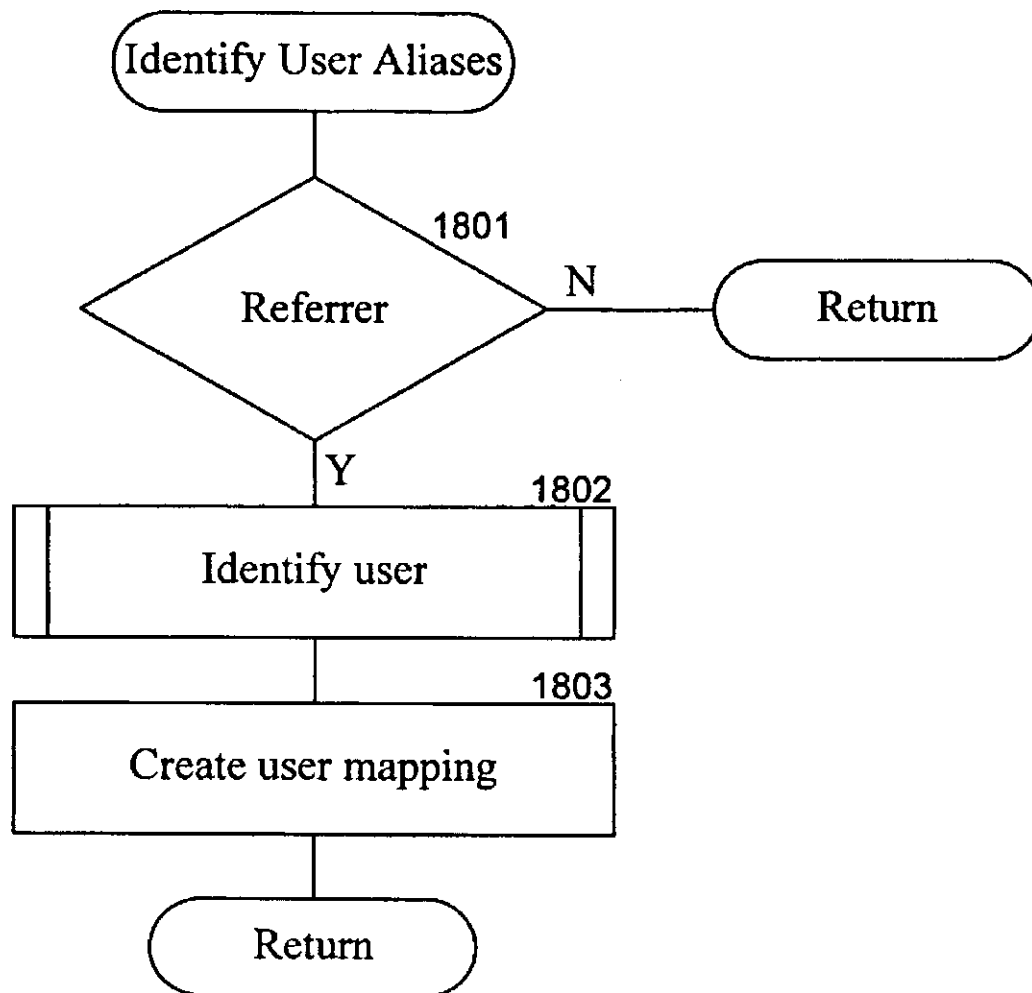


Fig. 18

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1900

Welcome to digiMine

digiMineSM
Powering your data for business advantage

1901 1903 1905 1907 1909

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

Unlock the Power of Your Data

You need to know more about your customers and about your business and you need to be able to act on that knowledge.

digiMine will uncover valuable business intelligence and enable you to take immediate action by delivering advanced analytics and personalization tools.

digiMine provides you with intuitive reports that have key metrics on customer behavior, site performance, product sales, content consumption, marketing campaign effectiveness, browser to buyer conversion, customer segment identification and much, much more. digiMine's data mining services also deliver predictive applications that give you the ability to personalize web content, cross-sell and up-sell.

Best of all, our application service provider (ASP) model allows us to provide you with an affordable solution that is quick to deploy and easy to use.

[Learn more >>](#)

1904

Contact Us

To request additional information about digiMine, please fill out our [information request form](#).

<http://www.digimine.com/>

910

UPSIDE EVENTS

Upside Wins
Upside Preview
Fall's Best of Show
Award at Internet World!

Service Benefits

See why digiMine is the best data warehousing and data mining solution for all eBusinesses.

digiMine Careers

Do you have a passion for technology, customer service and a desire to win? If so, check out our current job opportunities.

Fig. 19A

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digiMine Services Overview

digiMine

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

1901 1903 1905 1907 1909

service benefits 1902

take the quiz 1904

how digiMine works 1906

Data Sheet 1908

request info 1909

digiMineSM SERVICES Overview

Powerful, affordable and easy to use.

digiMine is setting new standards in the delivery of advanced analytics, data warehousing and data mining for eBusinesses. As an application service provider (ASP), we deliver a comprehensive and affordable solution that is quick to deploy and easy to use.

What truly sets digiMine apart from the competition is our ability to go far beyond today's web reporting services by using the most powerful data mining and personalization tools. By applying high-end data mining algorithms to the full range of click stream, user registration, product catalog, campaign and transaction data, we provide you with the most relevant business intelligence. And we enable you to take action with precision and speed.

digiMine(SM) Services include:

1. digiMine Warehousing Services 1912
2. digiMine Analytic Services 1914
3. digiMine Data Mining Services 1916
4. digiMine Data Enhancement Services 1918

1915

<http://www.digimine.com/services/>

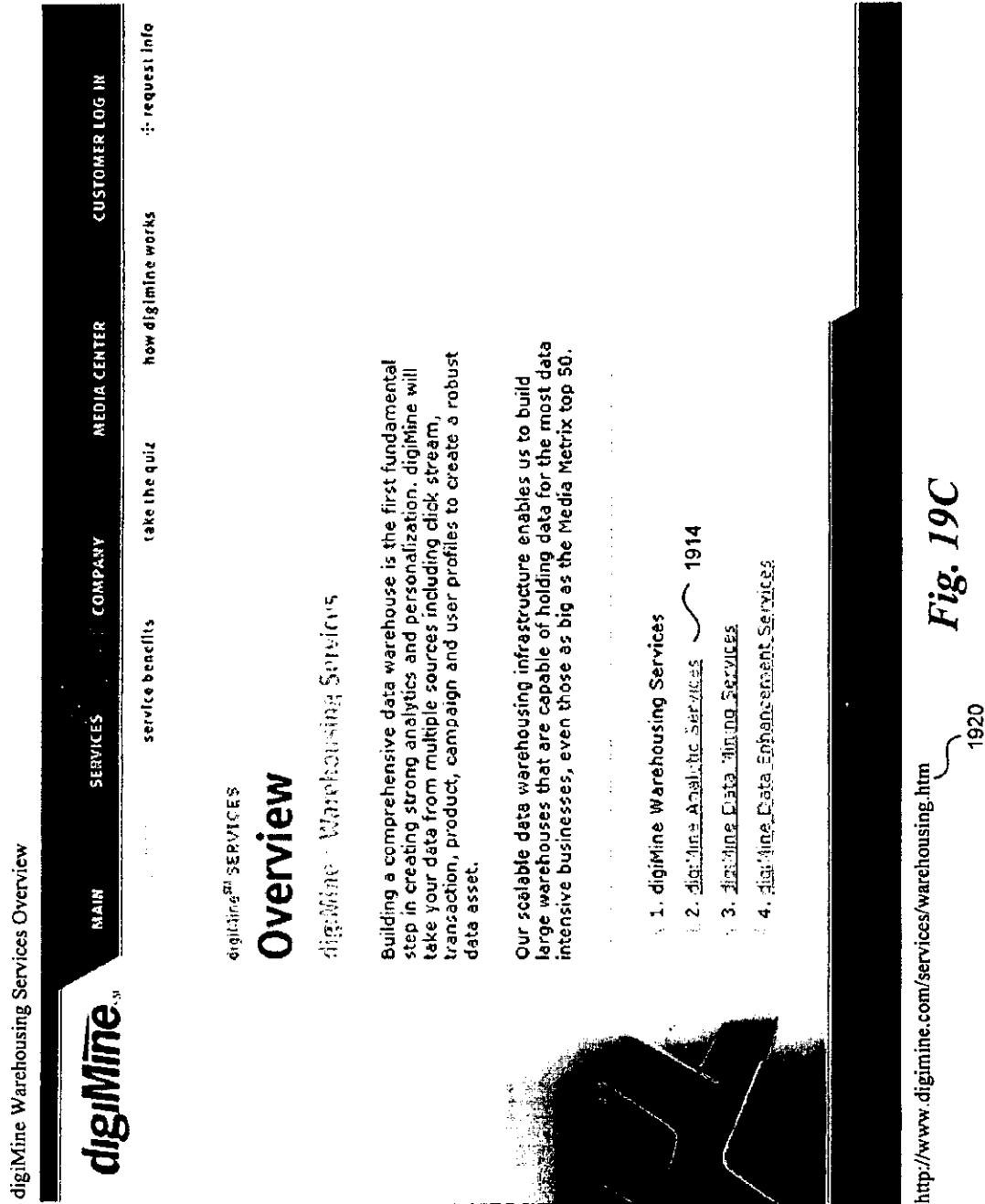
Fig. 19B

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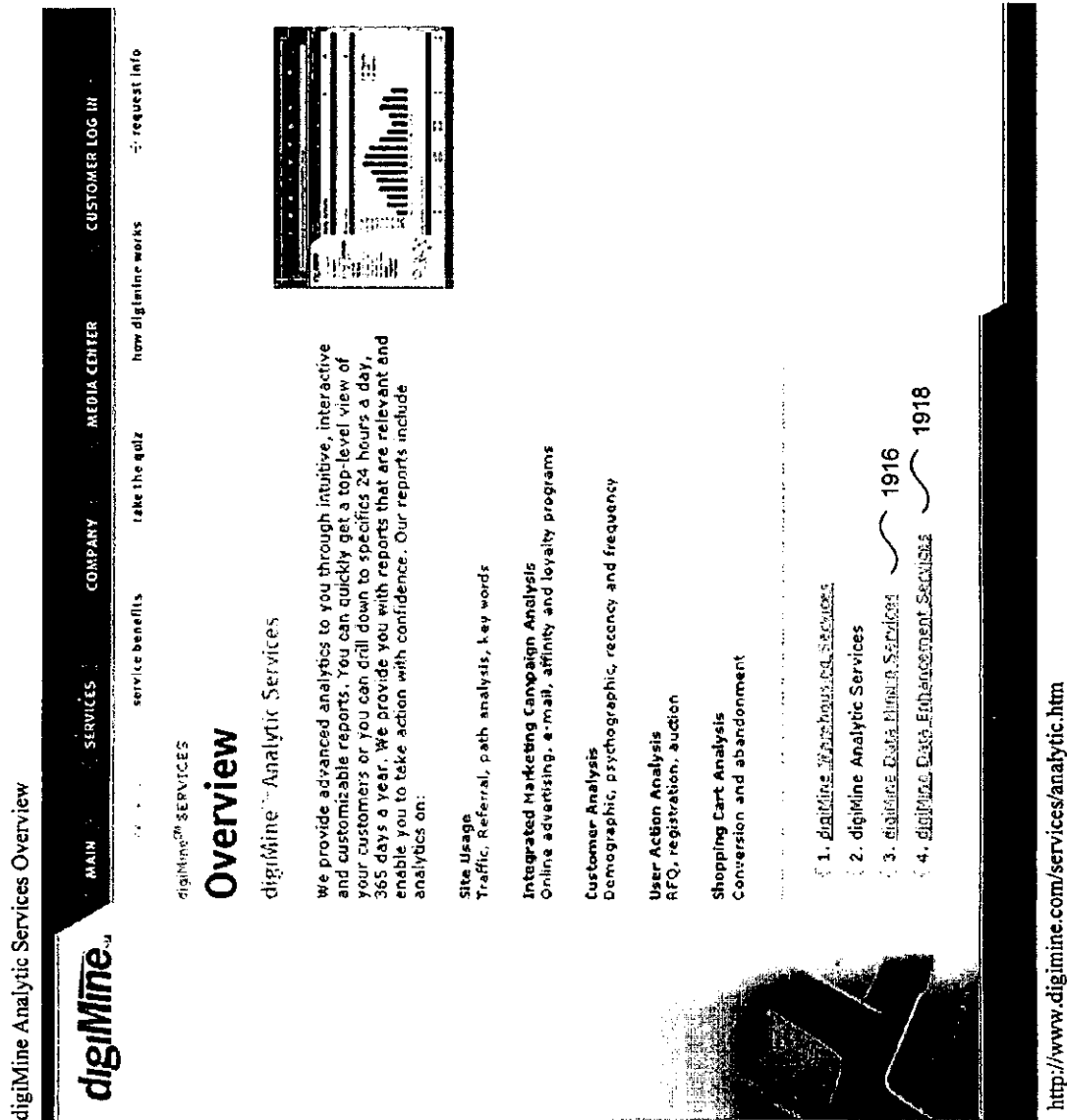


Fig. 19D

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digimine Data Mining Services Overview

digimine

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

service benefits take the quiz how digimine works request info

digimineSM SERVICES

Overview

digimineSM Data Mining Services

digimine applies advanced data mining algorithms to provide you with the most powerful analytics available. Our algorithms identify patterns in the data that can deliver new insight into your customers. These analytics, coupled with our interactive reporting interface, give you the intelligence you need to make timely decisions with confidence.

- Personalization
- Cross-sell and Upsell
- Churn management
- Affinity Analysis - Product, Content, Event
- Customer Segmentation

1. [digimine Warehousing Services](#)

2. [digimine Analytics Services](#)

3. [digimine Data Mining Services](#)

4. [digimine Data Enhancement Services](#)

1918

Fig. 19E

<http://www.digimine.com/services/mining.htm>

• We go beyond today's typical web reporting services by using the most powerful data mining and personalization tools.

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digiMine Data Enhancement Services Overview

digiMine™

MAIN

SERVICES

COMPANY

MEDIA CENTER

CUSTOMER LOG IN

request info

how digiMine works

take the quiz

service benefits

1924

digiMine® SERVICES

Overview

digiMine™ Data Enhancement Services

digiMine(sM) Data Enhancement Services are helpful tools that make your data more valuable and more usable. These services can also help you reduce marketing costs by correcting addresses and eliminating duplicates.

digiMine(sM) Address Validation/Correction - digiMine can validate and correct customer addresses using information from the USPS. digiMine's address validation and correction services include: National Change of Address (NCOA), Locatable Address Correction Service (LACS) and Delivery Sequence File (DSF) processing.*

digiMine(sM) Merge/Purge - digiMine can also merge lists and purge duplicates. This service enables you to eliminate duplicate records and records that map to the same address (householding).

* NCOA, LACS and DSF are trademarks of the United States Postal Service

1. digiMine Merge/Purge Services
2. digiMine Address Services
3. digiMine Data Fusion Services
4. digiMine Data Enhancement Services

<http://www.digimine.com/services/enhancement.htm>

Fig. 19F

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The screenshot shows the 'digiMine Service Benefits' webpage. The navigation bar includes links for MAIN, SERVICES, COMPANY, MEDIA CENTER, and CUSTOMER LOG IN. The main content area is titled 'Service Benefits' and lists several key features of the digiMine(SM) Services. Annotations with arrows point to specific parts of the page: '1926' points to the 'take the quiz' link; '1930' points to the 'Data Sheet' link; and '1930' points to the 'request info' link.

digiMine Service Benefits

Service Benefits

Powerful data mining tools
Our data mining-powered reports provide you with unparalleled intelligence. We give you the tools to enable personalization that precisely targets content and maximizes up-sell and cross-sell opportunities.

Easy to use
digiMine(SM) Reporting Services are intuitive and organized to deliver relevant insight instantly. Our interactive reports allow you to customize the view of your analytics.

A comprehensive data asset
digiMine builds a robust, scalable and secure data warehouse for you that combines the full range of clickstream, user-registration, product, campaign and transaction data.

Quick to deploy
digiMine offers fast time-to-deployment. In fact, a typical installation allows us to setup and begin daily reporting within a few days. In many cases, customers begin to realize the value of digiMine(SM) Services in as little as 24 hours.

Affordable
Our web-based ASP model allows us to deliver a powerful, high-end service that is both efficient and affordable. Setup costs are minimal and do not require additional IT resources. A monthly fee covers all expenses related to hardware, software, operations and reporting.

Additional benefits:
digiMine offers the fastest time to deployment as little as 24 hours.

Data Sheet
Download our comprehensive digiMine(SM) Reporting Services Data Sheet (91 KB, Requires Adobe Acrobat Reader)

request info

<http://www.digimine.com/services/servicebenefits.htm>

Fig. 19G

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Powering your data for business advantage™

digiMine™

Unlock the Power of Your Data

Overview

If you're like most businesses, you are generating huge volumes of valuable data - data that can reveal the likes and dislikes of current and potential customers about your products, services and web site. Do you have the infrastructure and tools in place to turn your data into actionable business intelligence?

digiMine, Inc. is setting new standards in the delivery of powerful analytics and personalization for e-businesses. Our data mining services provide you with intuitive reports to understand customer behavior, marketing campaign effectiveness, sales trends, browser-to-buy conversion, customer segment identification and much more. digiMine's data mining services also deliver predictive applications that give you the ability to personalize web content, cross-sell and up-sell.

digiMine is the only true ASP (application service provider) for sophisticated data warehousing and data mining solutions. We go far beyond today's web-reporting packages by building a comprehensive data warehouse and by applying data mining tools to the full range of click stream, user registration, product catalog, campaign and transaction data. And our ASP model enables us to provide you with an affordable solution that is quick to deploy and easy to use.

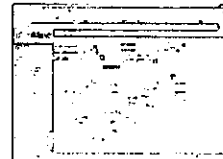
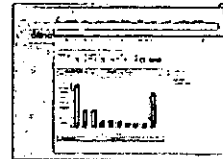
Service Benefits

Powerful data mining tools

Our data mining powered reports provide you with unparalleled intelligence. We give you the tools you need to enable personalization that precisely targets content and maximizes up-sell and cross-sell opportunities.

Comprehensive data asset

We take your multiple sources of data and build a robust data warehouse for you - a fundamental step in extracting the greatest value from your data. Our scalable data warehousing infrastructure enables us to build customer specific warehouses that are capable of holding data for the most data intensive businesses.



digiMine, Inc.'s reports provide actionable insight into customer behavior.

Do you know enough about your customers?

1. How many customers came to you site yesterday?
2. How many came from the website?
3. Can you get a list of these new customers and email them a personalized thank you the next day?
4. What are the top 10 most visited product areas on your site?
5. Which products should you consider making "loss leaders" to attract new customers?
6. What are your top ten selling products or services? Have they changed in the last month?
7. How many shoppers go through your homepage per session?
8. Which marketing promotions are most effective at drawing new customers to your site?
9. Which customers are likely to "churn" and which are loyal shoppers on your site?
10. What is the expected "lifetime value" of your customer?

How many of these questions can you answer today? You're not alone if you can only answer a few. With digiMine, you will be able to answer these questions and more.

Fig. 19H

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Affordable

Our web-based ASP model allows us to deliver a powerful, high-end service that is efficient and affordable. Setup costs are minimal and do not require additional IT resources. Fixed monthly fees cover all expenses related to hardware, software, operations and reporting.

Easy-to-use

digIMine™ Reporting Services are intuitive and organized to deliver relevant insight instantly. Our Interactive reports allow you to customize your view of your analytics. And you don't have to be a statistician to understand your data.

Quick to deploy

digIMine offers the fastest time to deployment. In fact, a typical installation allows us to setup and begin daily reporting within a few days. In many cases, our customers have full analytics in less than 24 hours.

How digIMine Works

digIMine™ Services do not require you to invest in additional IT resources, nor do we require you to deploy data tags. We simply install a digIMine Slurper™ at your data center that encrypts and compresses your data for transmission at pre-determined times. digIMine's Slurper™ is a simple piece of software that has the ability to pull web server logs and gather data from any OLE-DB-compliant database - from Oracle, SQL, DB2 and others. This process does not compromise your network security or require you to open your firewall.

Once your data is transferred to digIMine's data center, it is parsed, cleaned and loaded into a secure data warehouse.

digIMine then produces detailed and accurate reports that are delivered 24 hours a day, 7 days a week, 365 days a year. You can access your reports through a dedicated https connection using a standard browser. The reports are completely secure and require user authentication. In fact, as an administrator, you have the ability to set various levels of access permission for different business users in your company. Your data is also made available for export.

digIMine provides data mining services for predictive applications. These predictive components give you the ability to personalize web content and cross-sell or up-sell products. Data mining components run in real-time on your web site or in batch applications, such as targeted e-mail.

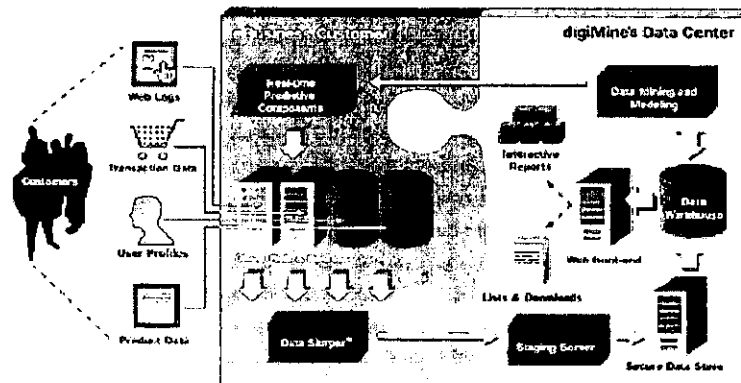


Fig. 199A

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digIMine, Inc.
11250 Kirkland Way
Kirkland, WA 98033

Tel: 425 896 1700
Fax: 425 896 1777

www.digIMine.com

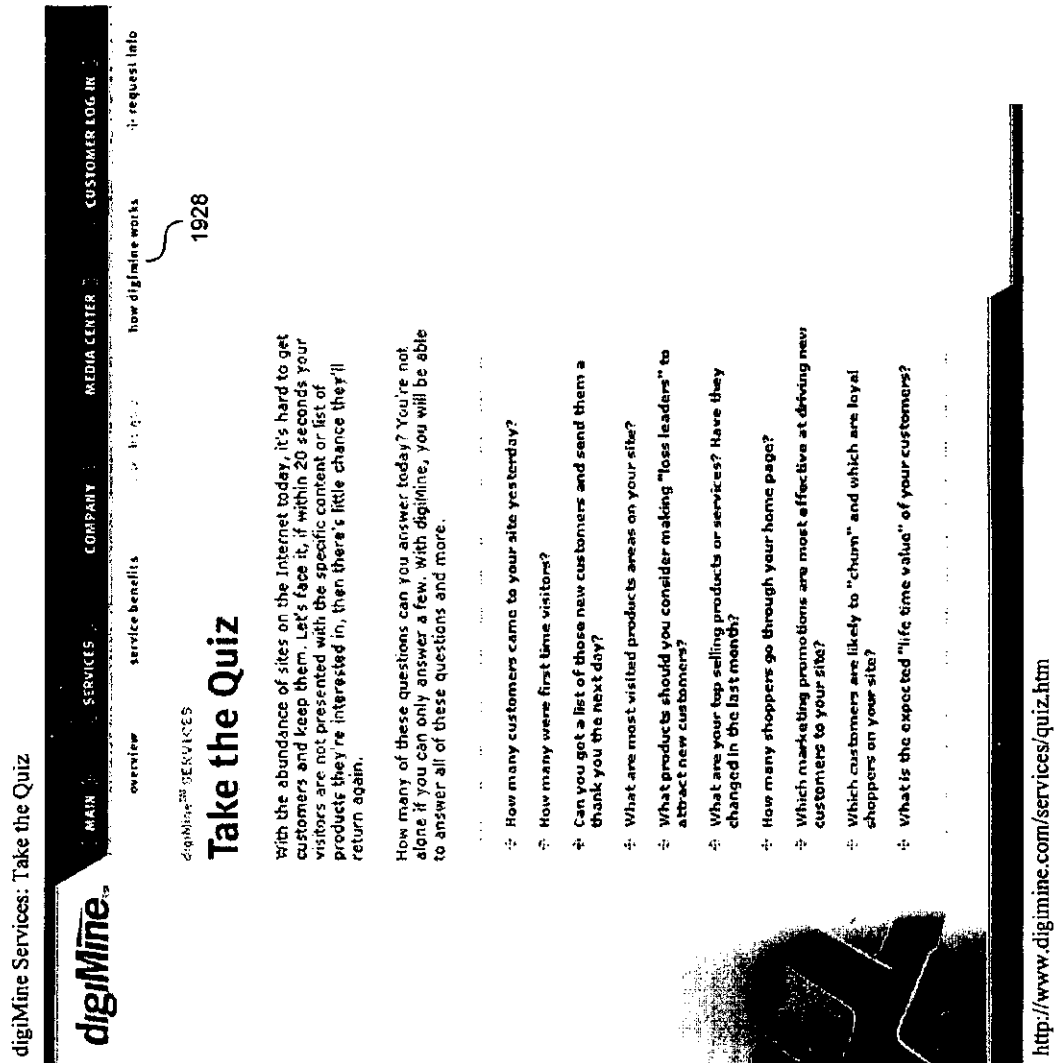
Fig. 19I

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digiMine Services: Take the Quiz

digiMine services

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

overview service benefits how digiMine works request info

1928

Take the Quiz

With the abundance of sites on the Internet today, it's hard to get customers and keep them. Let's face it, if within 20 seconds your visitors are not presented with the specific content or list of products they're interested in, then there's little chance they'll return again.

How many of these questions can you answer today? You're not alone if you can only answer a few. With digiMine, you will be able to answer all of these questions and more.

- ✚ How many customers came to your site yesterday?
- ✚ How many were first time visitors?
- ✚ Can you get a list of those new customers and send them a thank you the next day?
- ✚ What are most visited products areas on your site?
- ✚ What products should you consider making "loss leaders" to attract new customers?
- ✚ What are your top selling products or services? Have they changed in the last month?
- ✚ How many shoppers go through your home page?
- ✚ Which marketing promotions are most effective at driving new customers to your site?
- ✚ Which customers are likely to "churn" and which are loyal shoppers on your site?
- ✚ What is the expected "life time value" of your customers?

<http://www.digimine.com/services/quiz.htm>

Fig. 19J

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How digiMine Works 1905

digiMine

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

overview service benefits take the quiz request info

How digiMine Works

digiMineSM SERVICES

digiMine Services do not require any additional investment in IT resources, nor do we require you to deploy data taps. We simply install a digiMine Data SlurperSM at your data center that encrypts and compresses your data for transmission at predetermined times. digiMine's Data SlurperSM is a simple software application that has the ability to pull web server logs and gather data from any commercial database such as Oracle, SQL, DB2 and others. This process does not compromise your network security or require you to open your firewall. Alternatively, you can also send your data to us through a secure FTP transfer.

Once your data is transferred to digiMine's data center, it is parsed, cleaned and loaded into a secure data warehouse. We can also merge, purge, validate and correct your data.

We then apply data mining to produce insightful analytics. These analytics are generated and delivered to you through interactive reports and downloadable lists that are available 24 hours a day, 365 days a year. You can access your reports through a dedicated and secure connection using a standard browser.

Real-time data mining components (executables called from java or asp) are run independently of the digiMine data center to avoid any impact on site performance. These can be run in real-time on your web site or in batch applications such as targeted email.

digiMine's Data SlurperSM is a simple software application that pulls web server logs and gathers data from any commercial database -- with no impact on your IT department.

Data Sheet
Download the digiMineSM Services Data Sheet
(91 KB, Requires Adobe Acrobat Reader)

<http://www.digimine.com/services/howworks.htm>

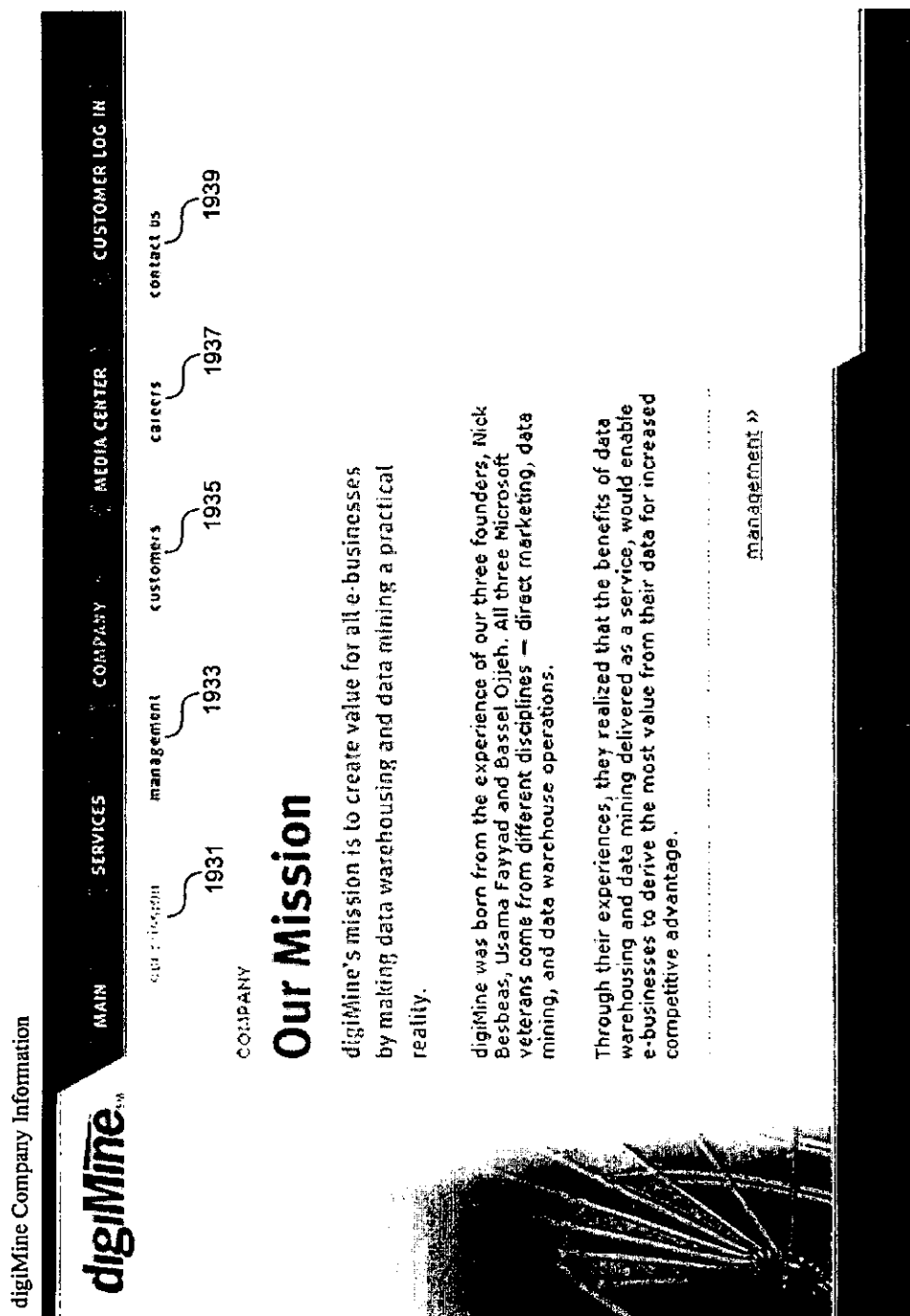
Fig. 19K

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digimine Company Information Management

digimine

MAIN SERVICES COMPANY MEDIA CENTER CUSTOMER LOG IN

our mission ... customers ... CONTACT US

Management

digimine's executive team brings unparalleled expertise in commerce site development, data warehousing, data mining and web/database marketing.

EXECUTIVE TEAM

Itseem Ezzayed ~ 1941
President & CEO, co-founder

Nick Bachung ~ 1943
Executive VP Sales and Marketing, co-founder

Bassel Ojleh ~ 1945
COO, co-founder

David E. Young ~ 1947
Chief Financial Officer

Bob Boland ~ 1949
Vice President of Legal Affairs

INVESTORS

Mayfield Fund
Second Avenue Fund
Cedar Grove Investments (Amazon.com, LoudEye, PhotoDisc)
Kellest Investments (InfoSpace.com, MCI WorldCom, eVite.com, CoinStar, meals.com, gear.com, Virtual Bank)
Sam Jadallah (Managing Director, Internet Capital Group; former Microsoft vice president)
Robert Pollan (Managing Director, Internet Capital Group)
James Voelker (former Nextlink CEO)
Deutsche Bank Technology Fund (internet, financials, and telecom funders)
Silicon Valley Angels (involved in hottest early-stage companies today)

<http://www.digimine.com/company/management.htm>

Fig. 19M

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diglMine Executive Bio: Bob Bolan

diglMine


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our mission customers careers contact us

1937

COMPANY Management

Bob Bolan, Esq.
Vice President of Legal Affairs
BOLAN@DIGIMINE.COM



1937-1938

Management history:

Bob Bolan is chief legal counsel and advises the management team and the board of directors on all legal affairs of the company.

From 1994 until joining the company in May of 2000, Bob served as Corporate Attorney at Microsoft Corporation where he practiced in a wide variety of corporate matters including intellectual property, licensing, litigation, acquisitions, strategic alliances and investments. He provided legal services to the Windows Platform Division, the Applications Division, the Microsoft Network, and Microsoft Research Division. Most notably, Bob led the development of the patent portfolio for Microsoft Research in Redmond, Cambridge and China, representing such diverse technologies as speech recognition, natural language, operating systems, programming languages, cryptography, user interface design, artificial intelligence, graphics, vision, development tools, database and data mining.

From 1988 to 1994, Bob was a Member of Technical Staff at AT&T Bell Laboratories where he developed network features for high-capacity packet switches that formed the signaling infrastructure of the AT&T interexchange carrier network.

Bob received his J.D. from Capital University (1993) and was honored with membership to Order of the Coif. He also earned a Masters in Computer Science from Purdue (1988) and an Honors Bachelor of Arts in Classical Languages from Xavier University (1978). Bob is a member of the Washington State Bar, the Ohio Bar and is registered to practice before the US Patent and Trademark Office. He is a former extern of Judge James Graham of the United States District Court, Southern District of Ohio, and of Judge Alan Norris of the Sixth Circuit Court of Appeals.

<http://www.digimine.com/company/BobBolan.htm>

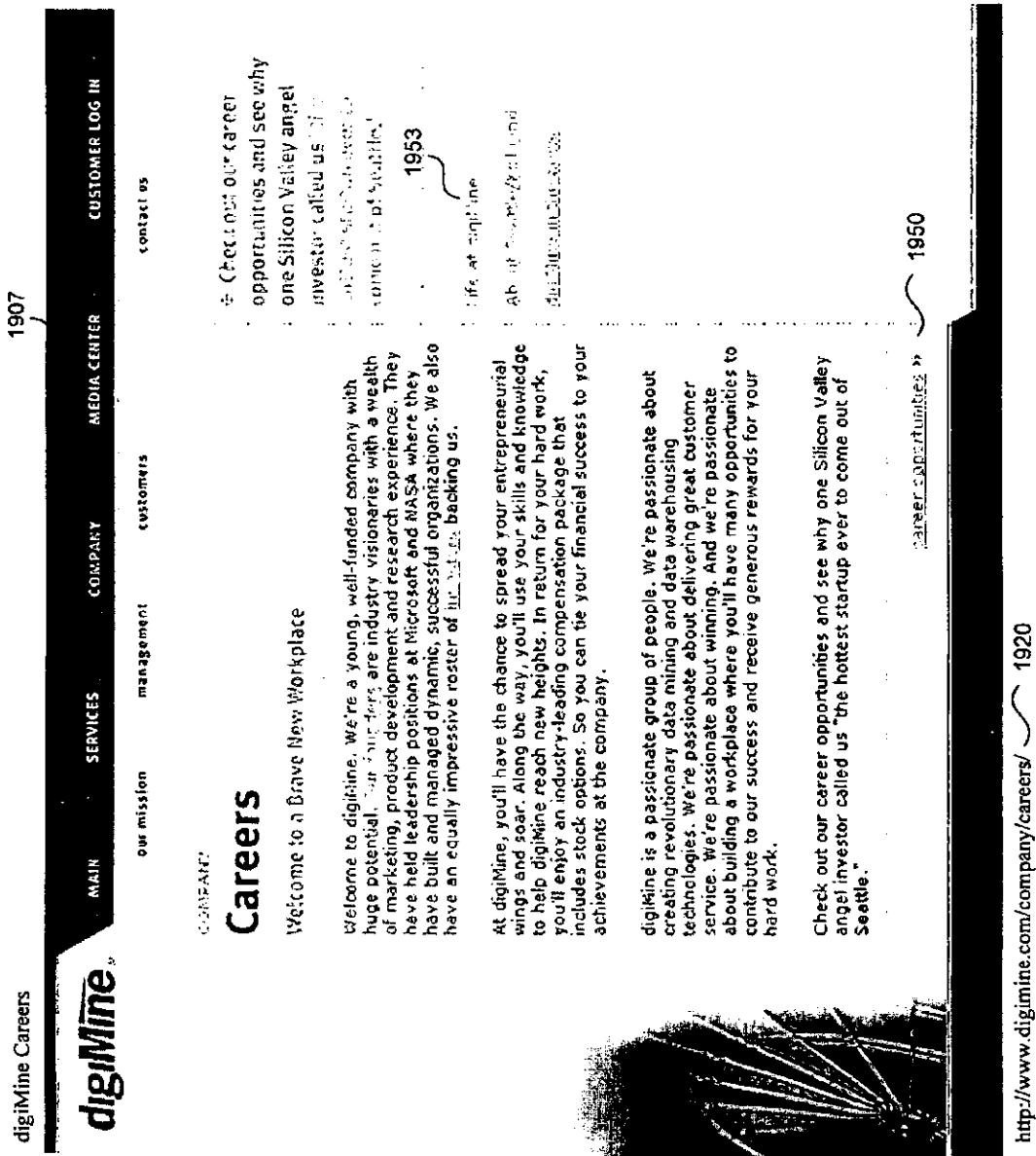
Fig. 19N

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digiMine Careers

digiMine

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Careers

Welcome to a Brave New Workplace

Welcome to digiMine. We're a young, well-funded company with huge potential. Our staffers are industry visionaries with a wealth of marketing, product development and research experience. They have held leadership positions at Microsoft and NASA where they have built and managed dynamic, successful organizations. We also have an equally impressive roster of investors backing us.

At digiMine, you'll have the chance to spread your entrepreneurial wings and soar. Along the way, you'll use your skills and knowledge to help digiMine reach new heights. In return for your hard work, you'll enjoy an industry-leading compensation package that includes stock options. So you can tie your financial success to your achievements at the company.

digiMine is a passionate group of people. We're passionate about creating revolutionary data mining and data warehousing technologies. We're passionate about delivering great customer service. We're passionate about winning. And we're passionate about building a workplace where you'll have many opportunities to contribute to our success and receive generous rewards for your hard work.

Check out our career opportunities and see why one Silicon Valley angel investor called us "the hottest startup ever to come out of Seattle."

1907

Check out our career opportunities and see why one Silicon Valley angel investor called us "the hottest startup ever to come out of Seattle."

1953

Life at digiMine

About digiMine and our investors

1950

Career Opportunities »

<http://www.digimine.com/company/careers/>

Fig. 190

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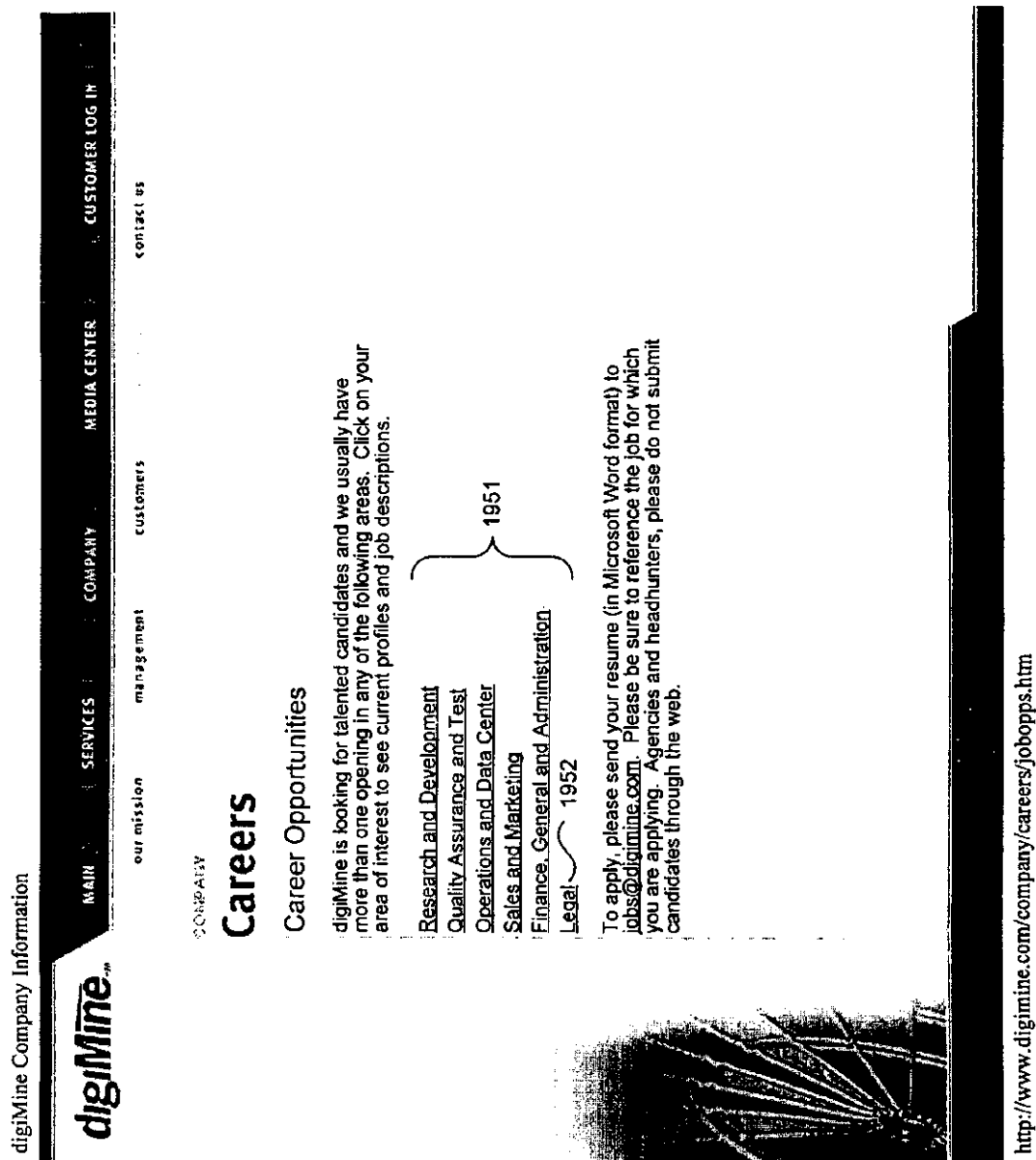


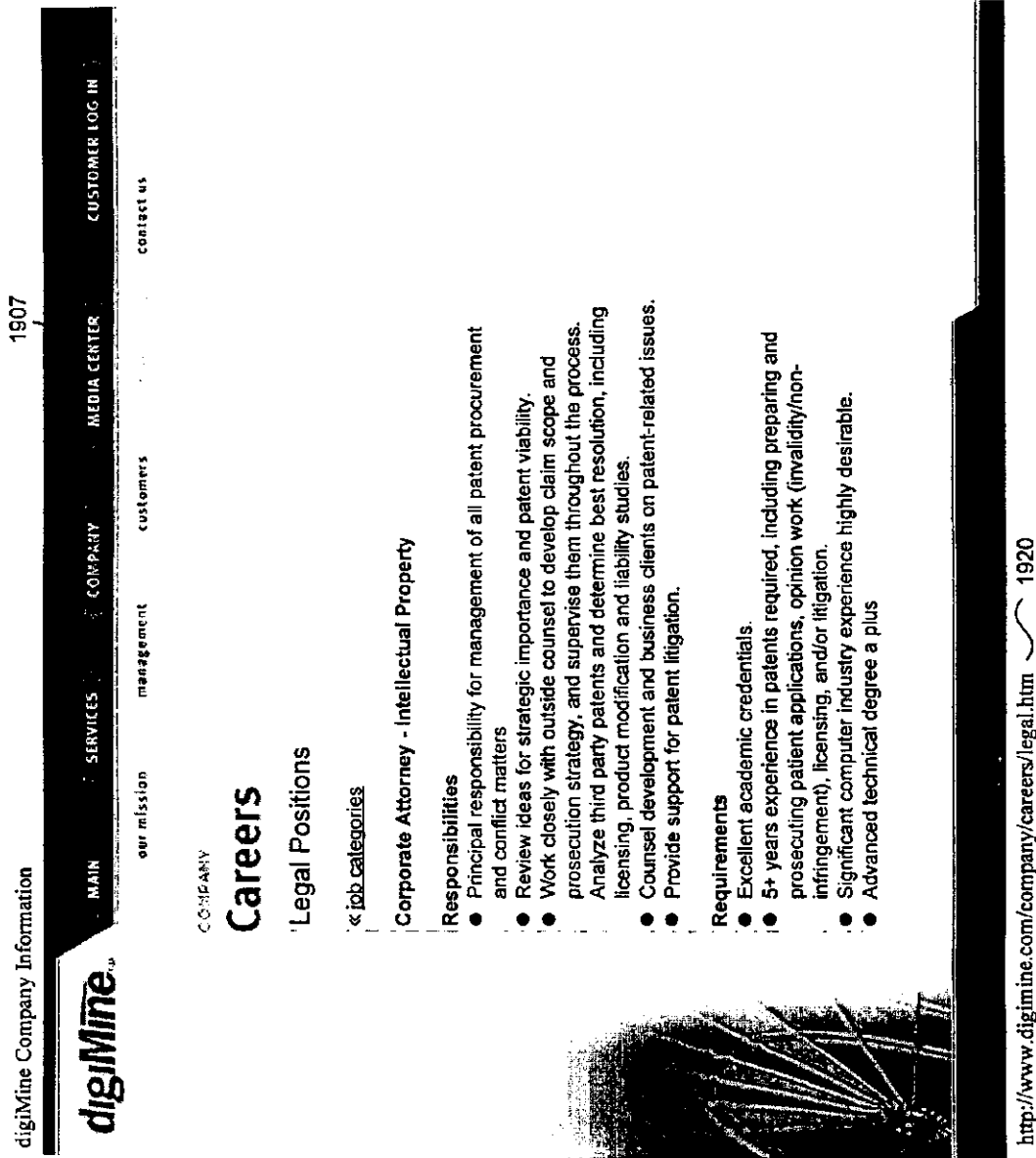
Fig. 19P

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digiMine Company Information

1907

digiMine

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Careers

Legal Positions

« job categories

Corporate Attorney - Intellectual Property

Responsibilities

- Principal responsibility for management of all patent procurement and conflict matters
- Review ideas for strategic importance and patent viability.
- Work closely with outside counsel to develop claim scope and prosecution strategy, and supervise them throughout the process. Analyze third party patents and determine best resolution, including licensing, product modification and liability studies.
- Counsel development and business clients on patent-related issues.
- Provide support for patent litigation.

Requirements

- Excellent academic credentials.
- 5+ years experience in patents required, including preparing and prosecuting patent applications, opinion work (invalidity/non-infringement), licensing, and/or litigation.
- Significant computer industry experience highly desirable.
- Advanced technical degree a plus

http://www.digimine.com/company/careers/legal.htm ~ 1920

Fig. 19Q


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1955 1957 1959

MEDIA CENTER

digiMine wants to turn data into gold


The algorithms and data-mining software created by Usama Fayyad have been used to find volcanoes on Venus and galaxies far, far away. Now the former scientist at NASA's Jet Propulsion Lab is using that same technology to create digiMine... »

Recent Press Announcements

January 17, 2001 - Technology Review, MIT's Magazine of Innovation, Names digiMine CEO Usama Fayyad to TR10 »

December 18, 2000 - digiMine Teams with EMC to Power Data Warehousing and Data Mining Service »

[More...](#)

Press Inquiries
Please direct all press related inquiries to
press@digiMine.com

the sixth annual WSA industry achievement awards
2.1.01 FINALIST

digiMine Services selected as finalist for Industry Achievement Award's Business Product of the Year.

<http://www.digiMine.com/mediacenter/>

Fig. 19R

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1909

digitMine Press Releases

1956

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media center home in the news

MEDIA CENTER

Press Releases

- January 17, 2001 - Technology Review, MIT's Magazine of Innovation, Cites digitMine CEO Dean A. Farnold as TR10
- December 18, 2000 - digitMine Teams with EMC to Power Data Warehousing And Data Mining Services
- October 30, 2000 - digitMine Wins Upgrade Preview Fall's Best of Show Award During Internet World 2000
- October 26, 2000 - digitMine Awarded Overall Best of Show at Upgrade Events' Fourth Annual Preview Fall Media Reception
- October 3, 2000 - digitMine Delivers Hosted Data Warehousing and Data Mining Services, Built on Microsoft's .NET Platform
- September 18, 2000 - digitMine, Inc. Launches The Fast Advanced Business Intelligence Service
- September 11, 2000 - Warfield Fund Leads digitMine's \$20 Million Second Round Funding
- August 15, 2000 - digitMine Bolsters Executive Team With Former Microsoft Attorney
- May 25, 2000 - digitMine Next Generation eBusiness Intelligence Service Provider Hires Key Executive
- April 3, 2000 - digitMine Founded to Offer Next Generation eCommerce Analytics and Personalization Solutions

http://www.digitmine.com/mediacenter/pressreleases.htm

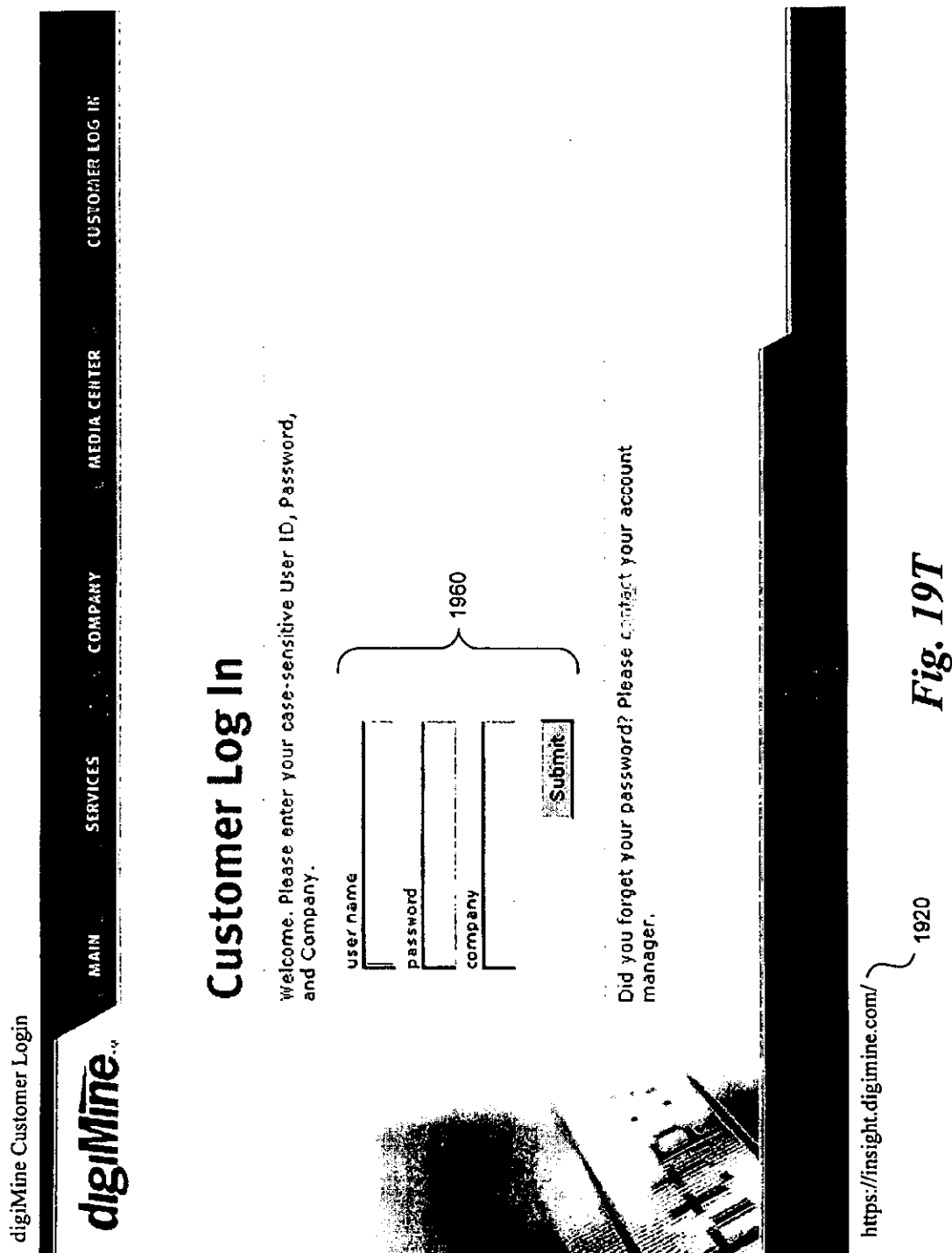
Fig. 19S

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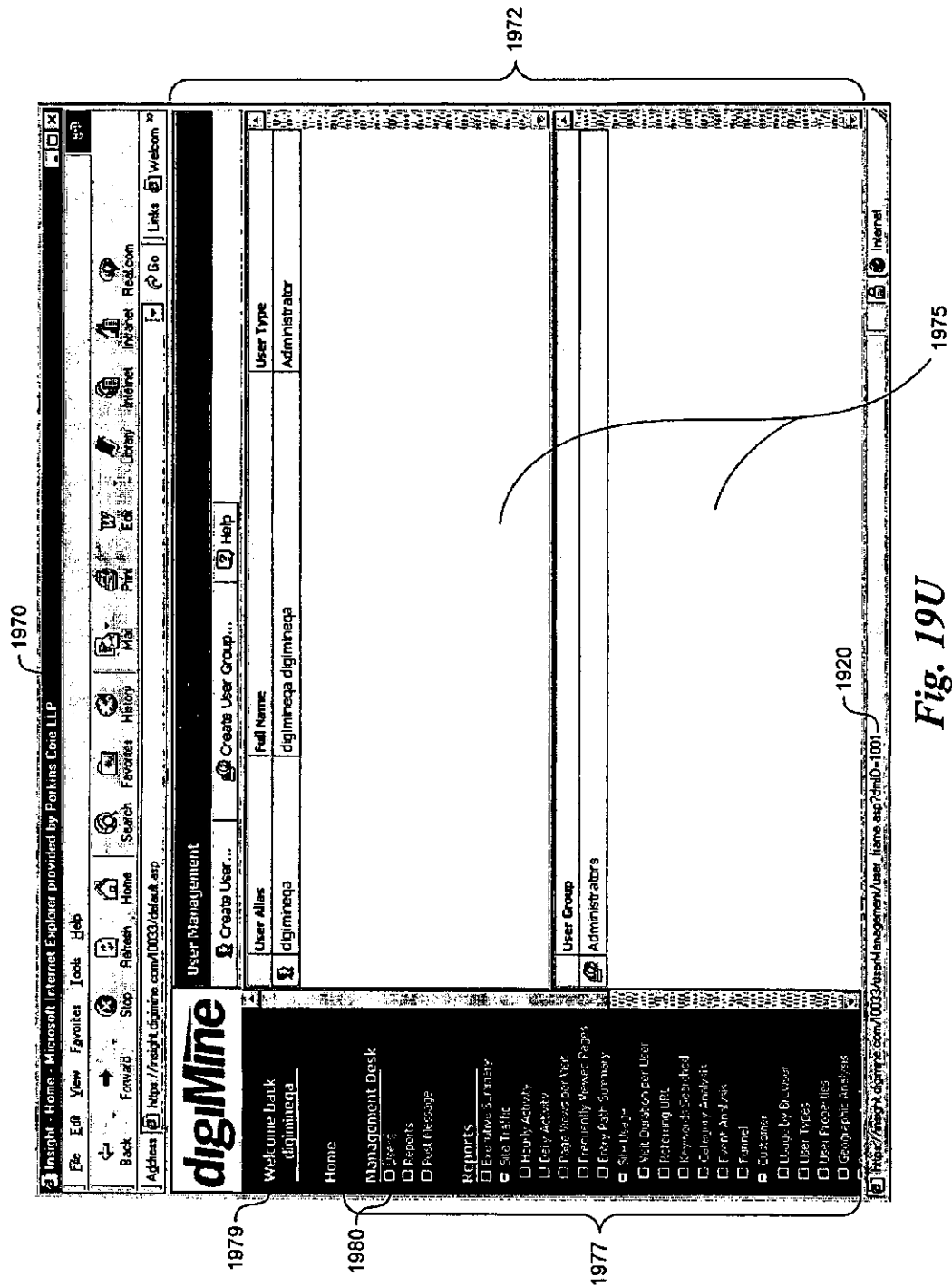


Fig. 19U

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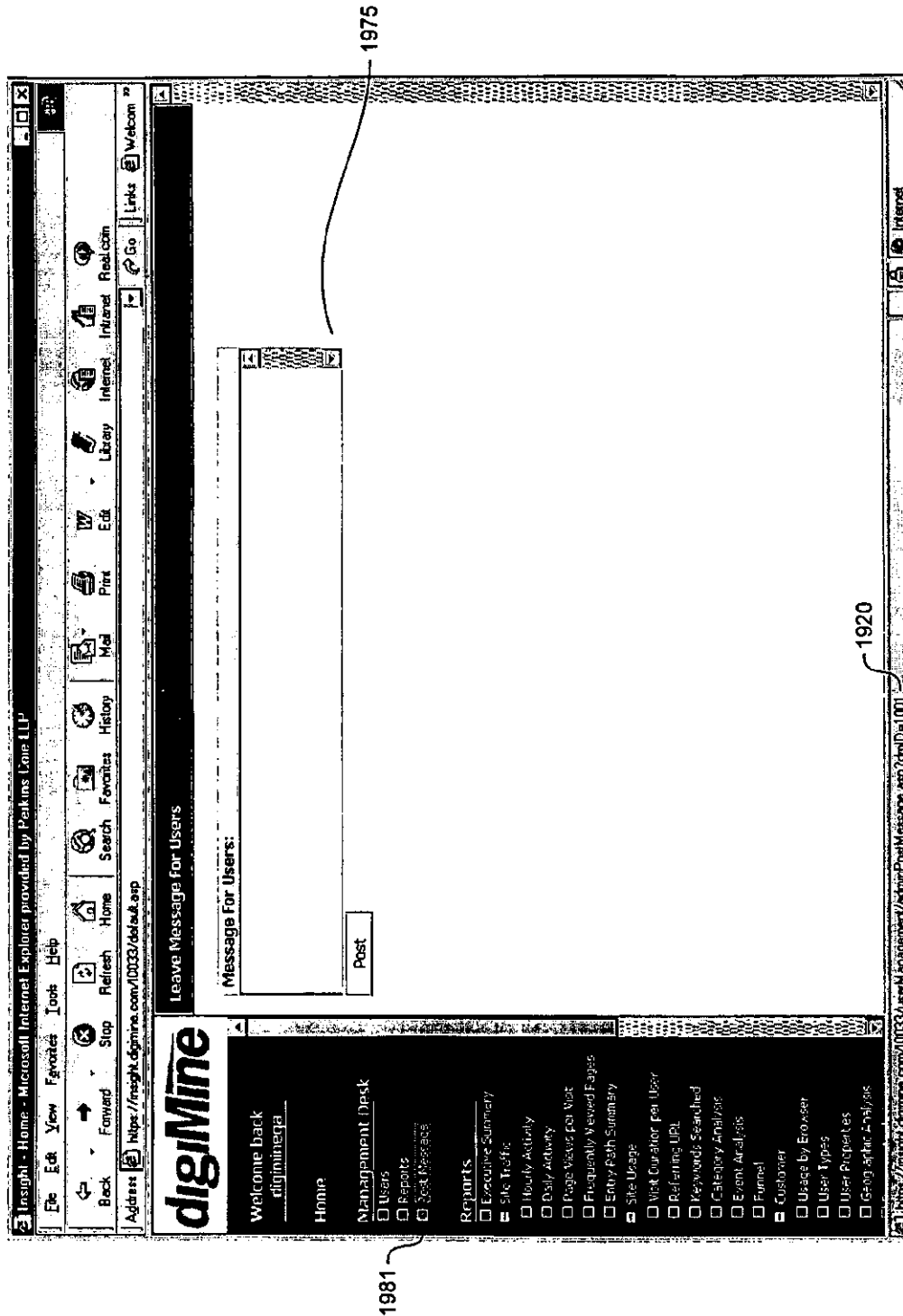


Fig. 19V

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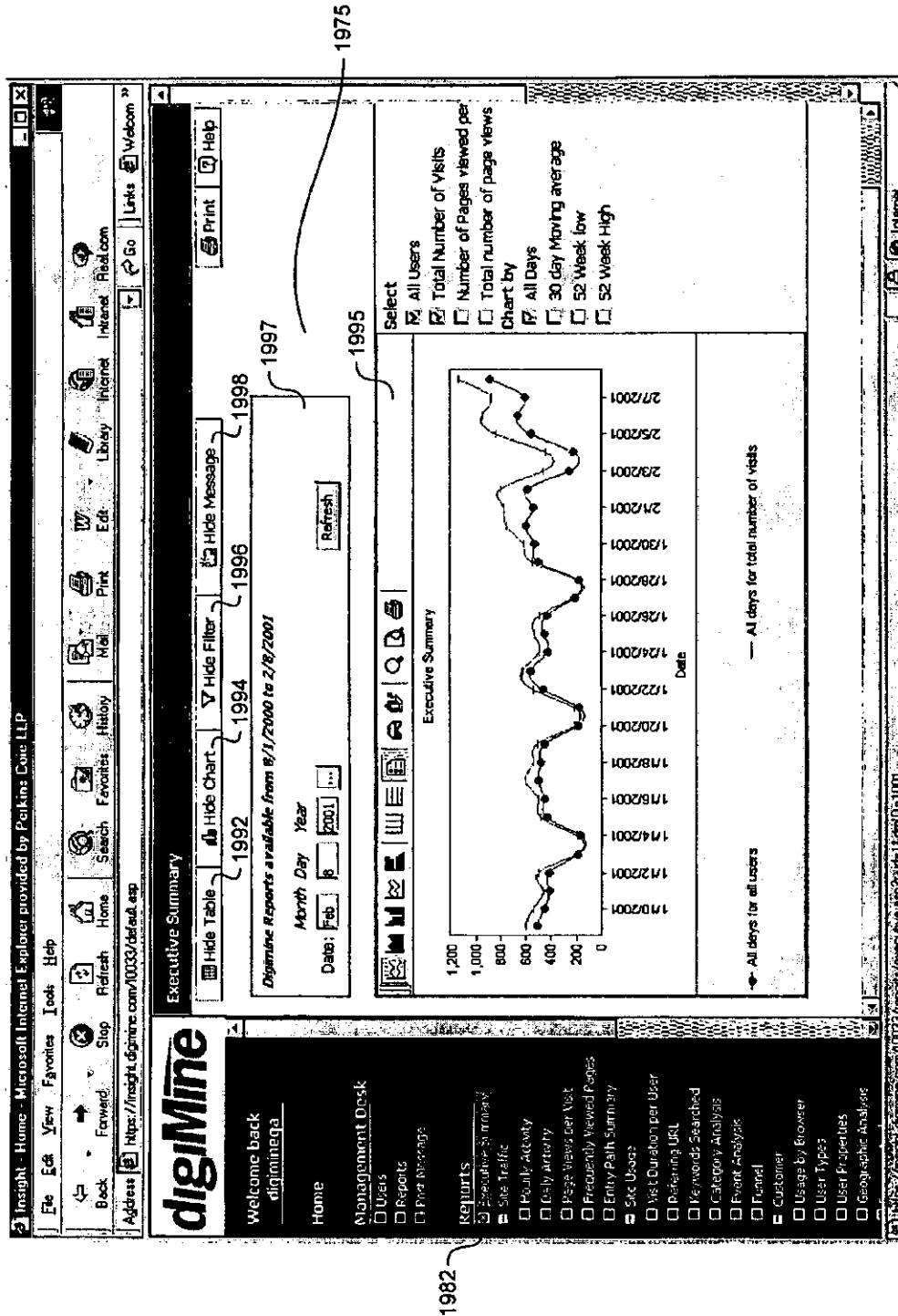


Fig. 19W

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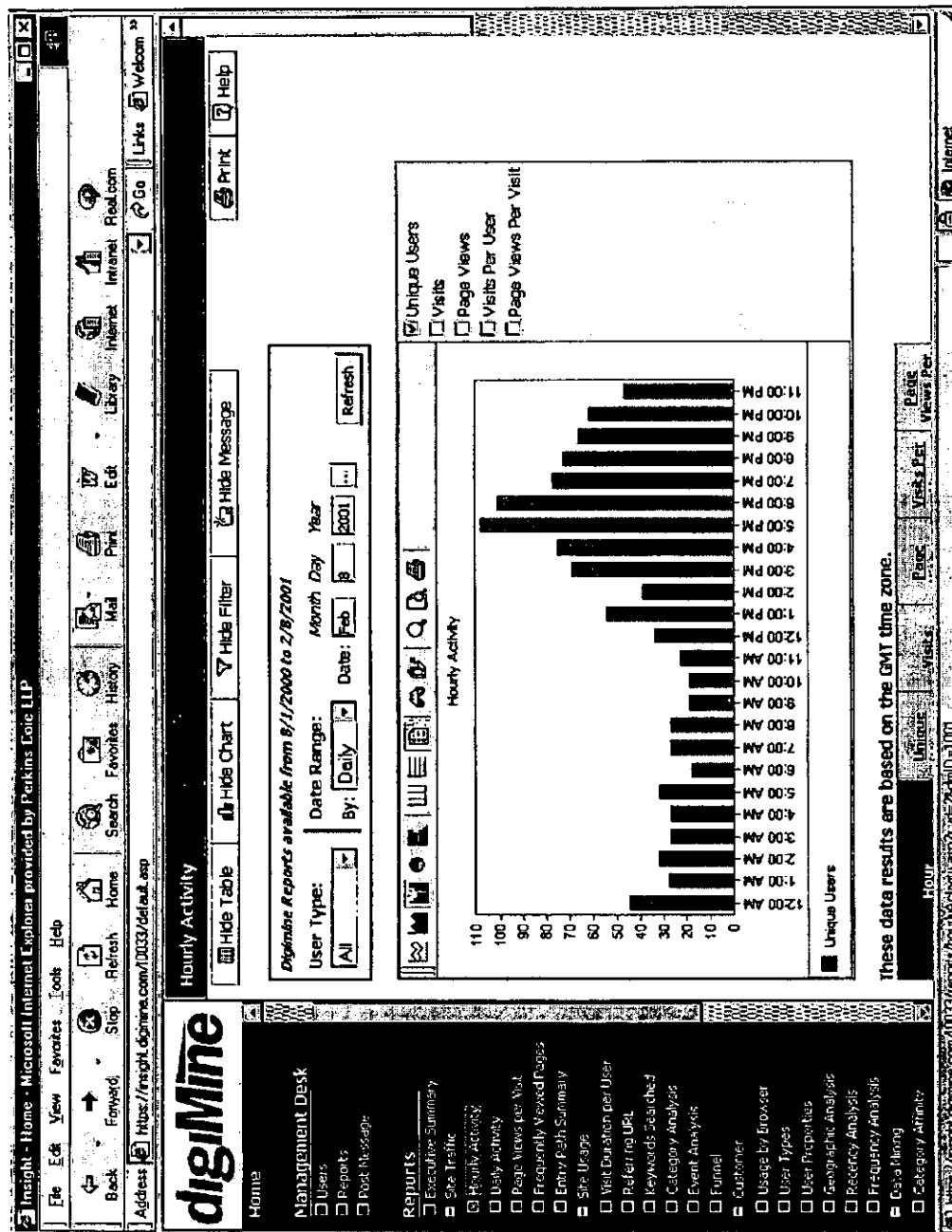


Fig. 19X

1983

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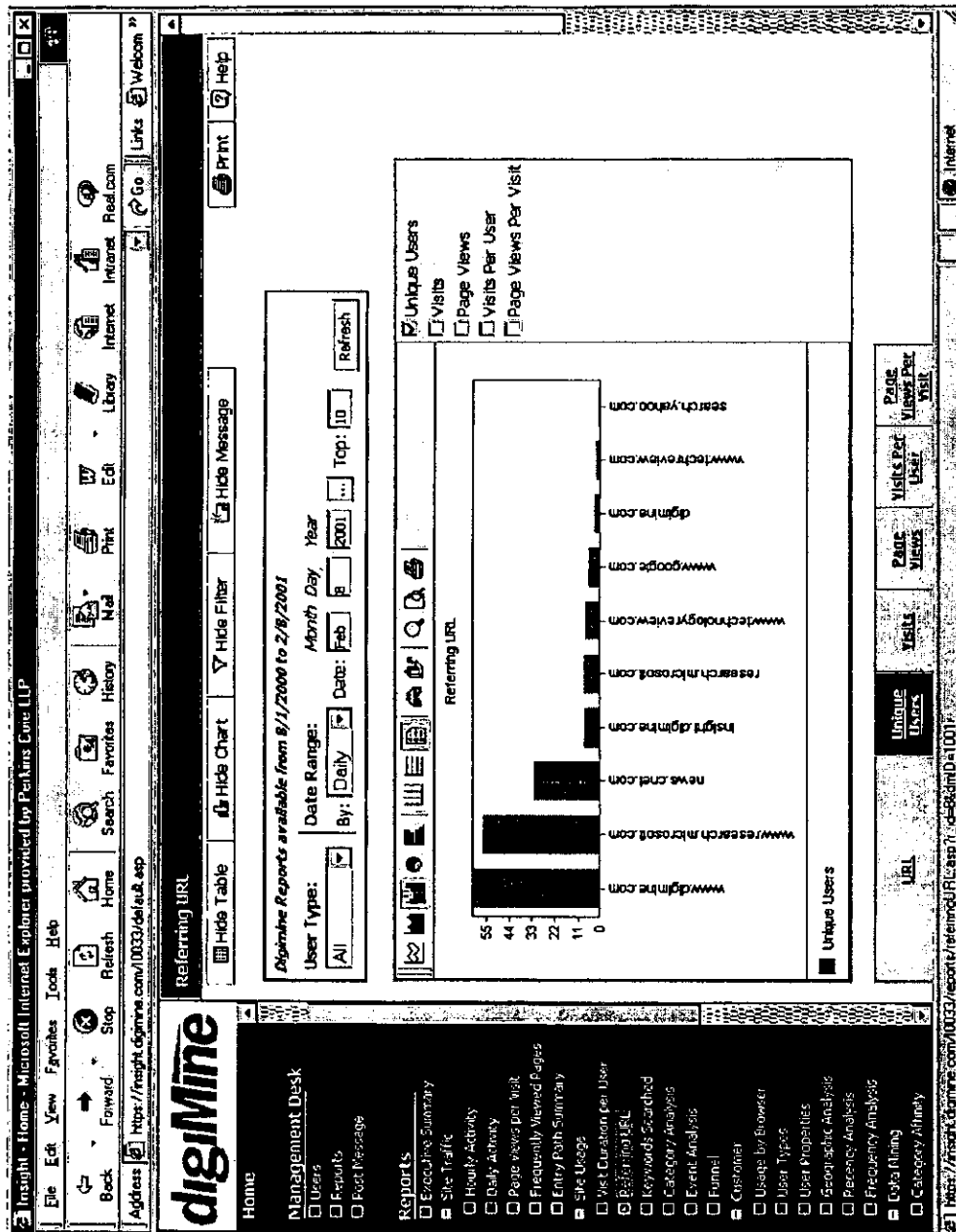


Fig. 19Y

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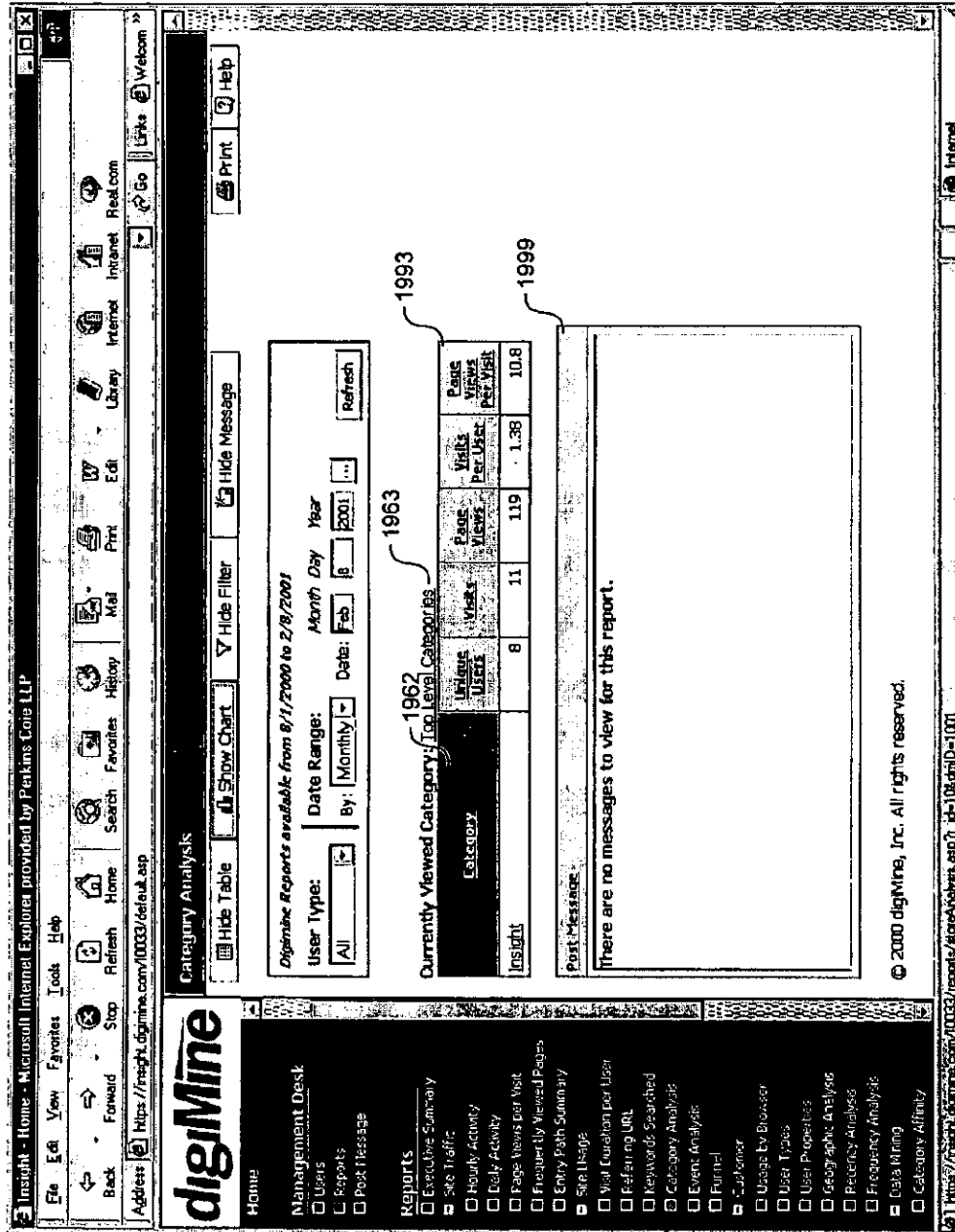


Fig. 19Z

1985

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Example Hierarchical Category Selection

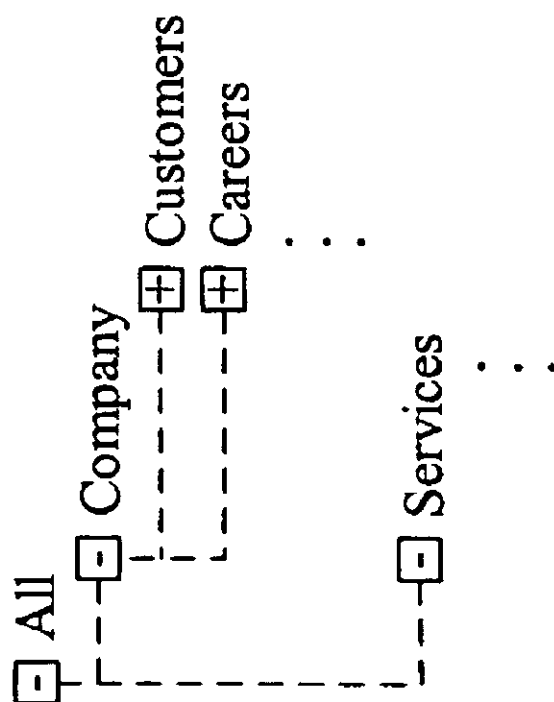


Fig. 19AA

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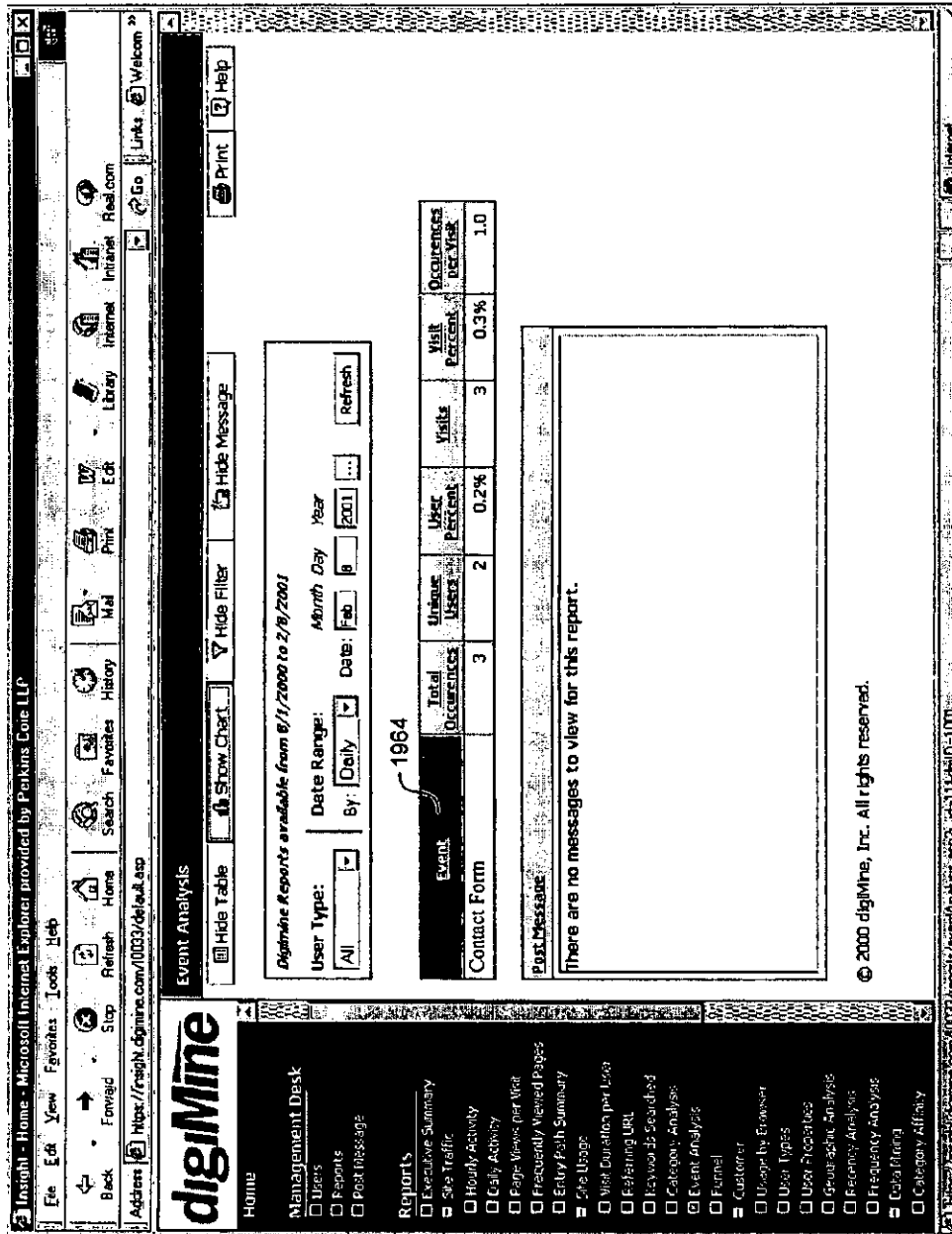


Fig. 19AB

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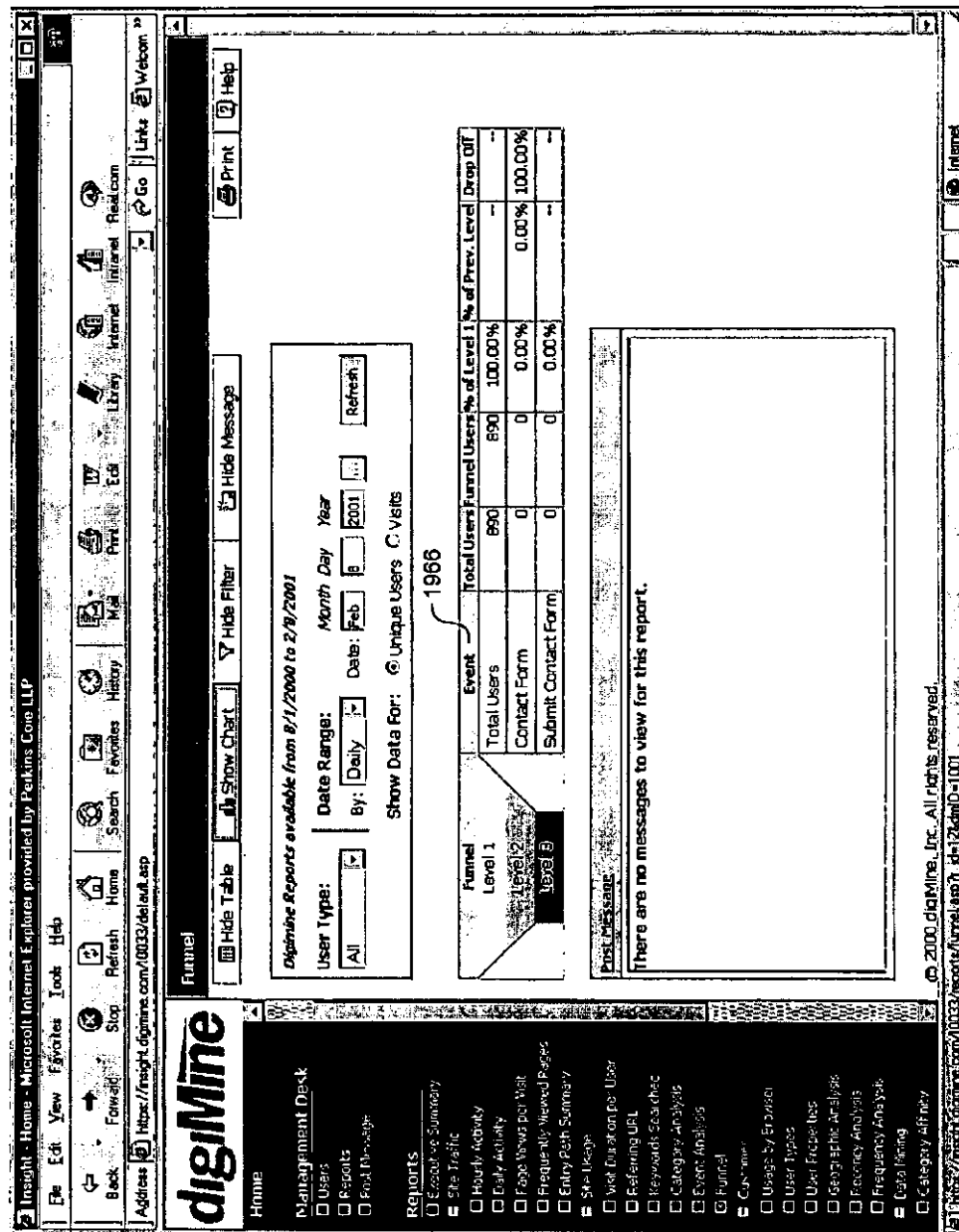


Fig. 19AC

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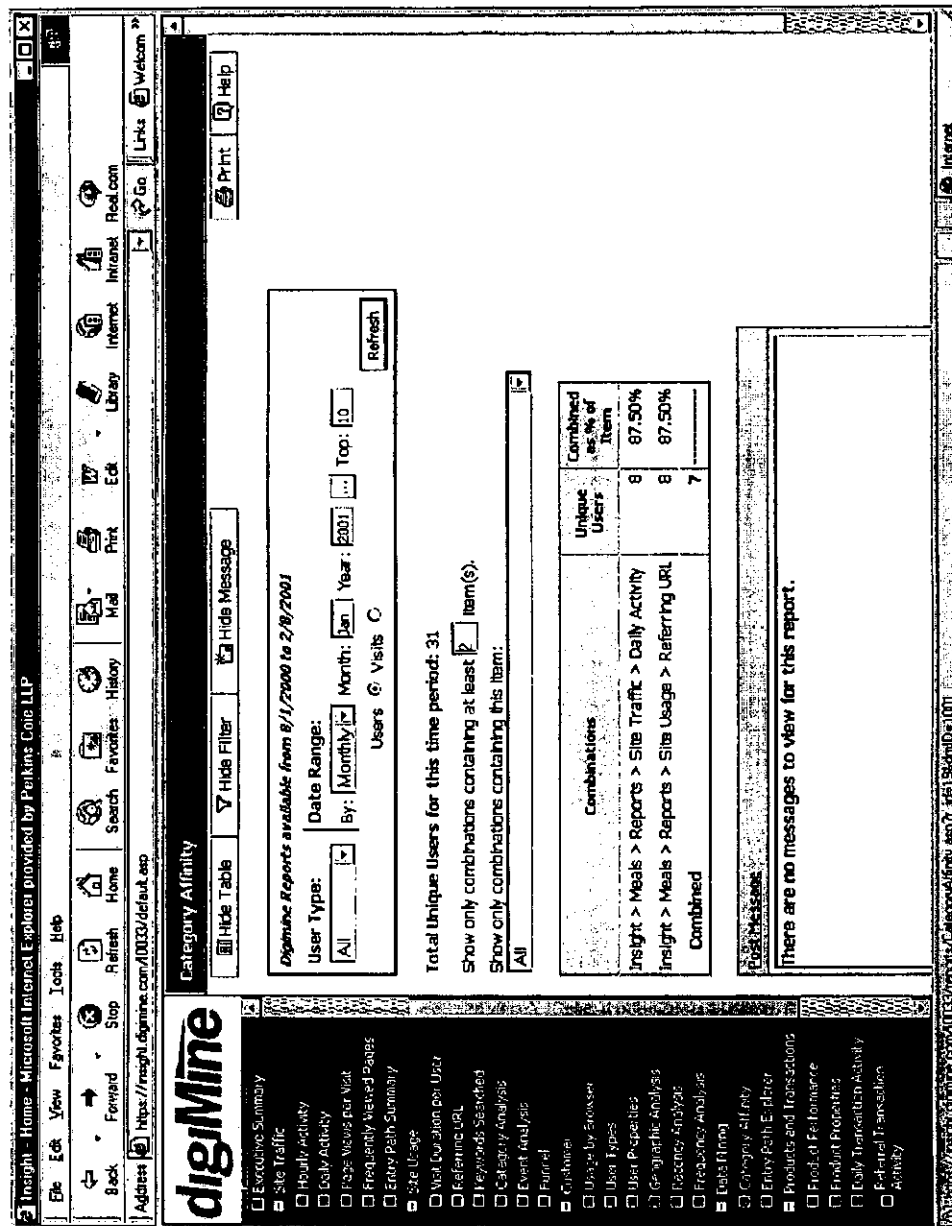


Fig. 19AD

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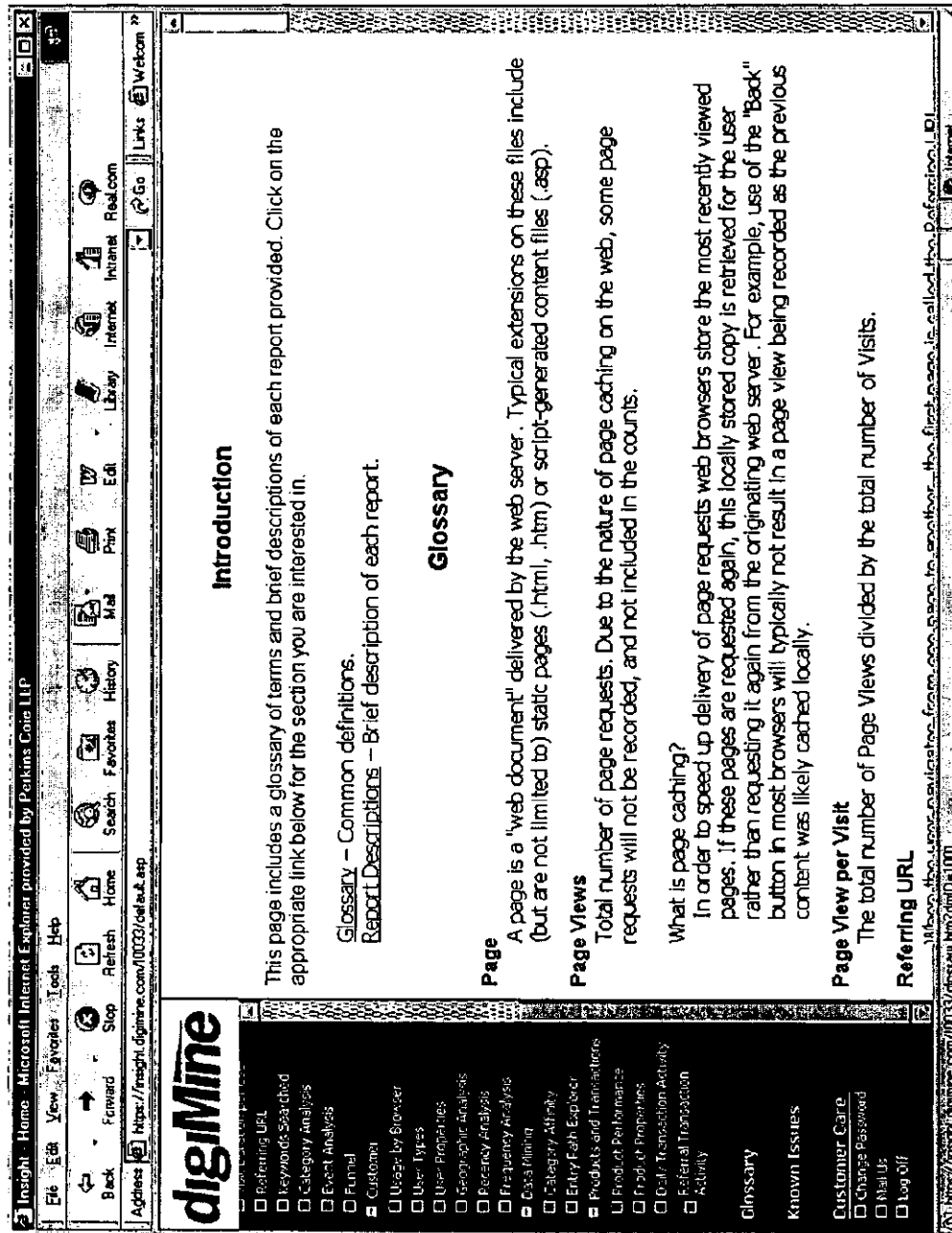


Fig. 19AE